9.

ON THE PEOPLE

OF

THE LONG BARROW PERIOD.

BY

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Linacre Professor of Anatomy and Physiology, Oxford.


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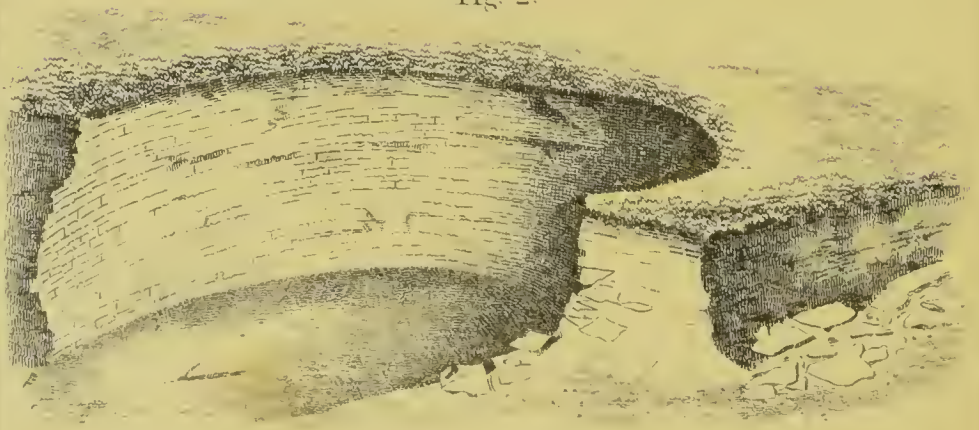
Fig 1.

Fig. 2.



LONG BARROW, "SWELL I"

FIG. 1. GROUND PLAN. FIG. 2. PENANNULAR CHAMBER.

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Introductory Remarks.—In this paper I propose to give in detail a description of the examination of three Long Barrows situated near the little village of Nether Swell, in the county of Gloucester, prefacing this account by some general remarks—firstly, as to the physical characteristics of the people of the Long Barrow period; secondly, as to the possibility of dividing that period into successive epochs; and thirdly, as to the rationale of the various modes of disposing of the dead observable in those early tumuli. In these prefatory remarks I shall not confine myself to the facts observed in the Gloucestershire explorations, but shall use, for purposes of comparison, my records of the investigation of similar barrows carried on by me in Yorkshire and elsewhere, with the valuable assistance of Canon Greenwell.

Looking at the osteological remains as a whole, perhaps the most striking point is the great disprôportion in the sizes and the lengths of certain of the long bones, and, by consequence, in heights, of the male and female skeletons respectively. The male skeletons were very ordinarily about 5 feet 6 inches in

height, as against a height of but 4 feet 10 inches attained to by the female. The average difference between the statures of males and females in civilised races is about half this amount, whilst a precisely similar disproportion is observable at the present day between the stature of individuals of the two sexes amongst savages.* The clavicles show the disproportionate smallness of the females even more strikingly than the bones already alluded to. Professor Busk has recorded the small size and delicate form of the clavicles from the Gibraltar caves.†

To the relative size of the skulls in the two sexes in prehistoric

* The late Sir Andrew Smith, K.C.B., informed me, that from extensive observations, carried on for a period of seventeen years, in South Africa, he could assure me that the Amakosa Kaffirs to the eastward of the colony averaged near 5 feet 8½ inches, women 5 feet ½ inch. (See "Archæologia," 1870, vol. xlii. p. 457, where I put this observation, and a number of other measurements bearing upon this point, on record.) Gustav Fritsch, in his work, "Die Eingeborenen Süd Afrikas," s. 17, gives 171·8 cm. (5 feet 7½ inches) as the average stature of men of that race of Kaffirs just mentioned, and at p. 24 he says of the females: "Pflegen die weiblichen Individuen in der Entwickelung den männlichen nachstehen was wohl in der unterdrückten politischen Stellung der Frauen seinen Grund hat;" but he does not give their exact stature. At p. 216 this author says, "Die Frauen der Ova-herero erscheinen in gleicher Weise wie der übrigen Süd Afrikanischen Nigritier in Vergleich mit den Männern unbedeutend," and at p. 277 he gives 160·4 cm. (5 feet 3 inches) for the average stature of ten male Hottentots, as against 144·2 (4 feet 8 inches) for the average attained from measuring four females of the same tribe. When, however, the stature of the male members of a race falls as low as that just given for the female Hottentot, the stature and other dimensions of the sexes appear to be nearly identical. This is the case with the Bushmen (see p. 398, *l.c.*). The measurements, however, given by Weisbach in the Anthropological part of the "Reise von Novara," 1867, p. 216, do not show that the discrepancy between the stature of the sexes of savage races rises in a direct proportion with their savagery, the greatest difference put there upon record being that between Java men, 1679 mm., and Java women, 1461·2, and amounting to 8½ inches, whilst the difference recorded between Australian men and Australian women is only 65 mm. (2½ inches). A similar disproportion, and one even greater than that recorded by Weisbach for the Javanese males and females, has been reported to me, as the rule amongst the Japanese; whilst, on the other hand, a "Report on the Aborigines of Victoria," 1859, p. 45 (*cit.* Davis, "Thesaurus Craniorum," p. 364), gives 5 feet 6 inches as the average height of eleven Australian men, as against 4 feet 10½ inches of an Australian woman. (See, however, Davis, "Phil. Trans." for 1868, p. 524.) The honourable position assigned to, or obtained by, the female sex amongst the Germanic races may be considered as testified to by the near approach to equality in stature which, even in ancient times (see "Smith's Dictionary of Geog.," Art. 'Germania') was observed to exist between the sexes. Liharzig, however, most surely underestimates the difference when, in part following Quetelet and Bednär, he gives, in his great work, "Das Gesetz des Wachsthumes," p. 4, Taf. i., ii., iii., iv., 175 cent. (68·899 inches) as the average male stature, and 173 cent. (67·111 inches) as the average female stature. The rationale of all this lies in the earlier attainment of puberty by the female sex in our species, and the consequent early consignment of the females, in savage varieties of it, to child-bearing and hard labour. Mr. Dobson's paper on the "Andamans and Andamanese," published in the preceding number of the Journal of this Institute, p. 457, furnishes a good illustration of this principle. (See especially Plate xxxi.)

† "Trans. Internat. Congress Prehist. Archæology," 1869, p. 158.

times, the doctrine laid down by Retzius in 1845,* and re-affirmed in 1854 by Hüsehke,† as to the upper and lower classes of modern soeiety, and the eivilised and uncivilised raees of modern days, is ordinarily supposed to apply, *mutatis mutandis*. Broea, in his interesting paper on the "Caverne de l'Homme Mort," says‡: "L'un des traits les plus remarquables de la série de l'Homme Mort, c'est la grande capacité relative du crâne des femmes." The head of the female occupants of this cavern, like the head of the rustie Dalecarlian females, as observed upon by Retzius, was but little—some 99·50 cub. cent. (6 cubie inches)—inferior in capacity to that of their male fellow Troglodytes, whilst the difference between the modern Frenchman of Paris and the modern Frenehwoman is more than twice as great as this amount. Where a woman is told by symbols, no less than by preeepts, as Tacitus tells us,§ the German women were told, *venire se laborum periculorumque sociam, idem in pace idem in prælio passuram ausuramque*, it is easy to understand, upon the prineiple of natural selection, how an equality, or, at least, a near approach to equality, in the physical, as well as in the moral and mental eharacter of the sexes, may eome to prevail, and how the weight and stature of the entire body in the female sex may approximate to the proportion of the male sex. Such, however, is rarely the case in savage tribes and times, and what we usually find, both among modern savages, as testified to by Weisbach,‖ and amongst prehistoric men, as I have found, is an exaggeration in the females of the disproportion whieh exists, even in eivilised raees, between their brain and their entire body weight, to the disfavour of the latter, whieh is relatively heavier in the other sex.

Without going into the familiar statisties which tell us that the brain attains very nearly its full weight at a very early age, I will just add that the average circumferenee of the head is shown by Liharzig¶ to be but about an ineh less in either sex at the age of 14 than it is in adult life, the measurements being 54 as against 57 centimetres for the male, and 52·5 as against 55·5 for the female sex. Now, when the differences in treatment and mode of life, whieh have already been alluded to as aecounting for the disproportion in the size of the entire body,

* "Müller's Arch.," 1845, p. 89.

† Schädel, "Hirn. und Seele," p. 48.

‡ "Revue d'Anthropologie," ii. 1, p. 45, 1873; and "Bull. Soc. Anth.," Paris, Tom. viii. ser. ii. p. 832, 1874.

§ "Germania," 18.

‖ "Reise der Novara," 1867, 'Anthrop. Theil,' s. 222.

¶ "Das Gesetz des Wachsthumes.," Taf. vi. and vi.; which table shows also that the female head is, at 21 months, 48½ centimetres in circumference as against 50 for the male.

observable among certain savages of either sex, do exist, they do not come into play ordinarily till after the age of 14, when the skull and its contents are incomparably nearer to their full size than the weight and size of the body are to their adult measurements; and it is obvious, therefore, that neither in civilised nor in savage life is there any *à priori* improbability that the brain and skulls of the two sexes should be at least sub-equal, however widely their entire body-weights may differ.

The female skulls labelled "Swell i. a," and "Swell vi. 2, 2," show, by their measurements given below, that some, at least, of the women of the Neolithic period, in Gloucestershire, stood in the same favourable relation of cranial capacity, as to the men of that time, as that which Broca has recorded on behalf of the women of the Caverne de l'Homme Mort, whilst the other bones from these barrows speak to the existence of opposite relations between the trunks and limbs of the two sexes. On the other hand, another female skull, "Swell i. 1, 22-9-1874," presents an inferiority of size as compared with the male skulls and the other female skull found in the same barrow and in its immediate vicinity, which may be expressed more clearly than by its detailed measurements, by saying, that previously to the restoration of the larger female skull, "Swell i. a," this smaller one could be got into its interior. This shows that as great differences might exist in savage races between the skulls of the sexes as Hüschke and Broca have noted as being usual in civilised times. These latter differences we may be allowed to ascribe to differences in education; the former may, perhaps, be explained by the relatively smaller-sized crania of female savages having belonged to women who, during their early childhood, and whilst their brains were being built up, had been subject to the disadvantages of scanty diet. "Savages," Mr. Bagehot has told us, "are the poorest of the poor;" and in a stone age, devoid of cerealia, scarcity of game. or a murrain among domestic animals, would bring famine alike upon the families of the chief, with whom, I take it, we have here mainly to deal, and upon their serfs. The same privations, the subjection to which at and after the time of puberty, say 14 years of age, we have suggested as the cause of the disproportionately short stature of the women, would, if they came into play upon the same subjects when at the age of 14 months, or earlier, be competent to stunt the growth of their brains in like ratio. It is, indeed, as the late Professor Phillips once remarked, something to be wondered at, considering the hardships and scanty dietary to which all, or nearly all, wild races of men are more or less subjected, that their skulls and brains should be as large as we

find them to be. "Ill-filled" skulls, consequently, to use the expressive epithet employed by Professor Cleland,* are not very rare in series taken from long barrows.

By an "ill-filled" skull, Professor Cleland tells us, he means a skull the exterior surface of which is marked by "a mesial and two lateral ridges on the roof, with flatness of the adjacent surfaces," and which has "its position of greatest breadth high up upon the parietal bones." The mesial carina may, I would add, be prolonged in such skulls over the frontal bone, and the frontal tubera may retain their infant-like prominence. To these peculiarities I would further add the presence of two depressions on the exterior of the skull, corresponding to convexities on its interior surface, as completing in many ancient and modern savage crania the character of "ill-filledness." One of these depressions is well known as the "post-coronal furrow," but inasmuch as the mesial vertical carina often developed in male skulls may be, and often is, continued along the line of the sagittal suture, so as to divide the so-called "furrow" into two parts, this name is not a happy one. The second of these depressions corresponds to a part of the parietal bone which lies a little above its posterior inferior angle, and immediately, therefore, above the part of the bone which is furrowed internally for the lateral sinuses. As in the former case, an inward ingrowth corresponds to the outwardly visible concavity, so that much such an appearance is produced as we can imagine would have resulted from pinching in the skull walls over this area, had they been plastic. I have been able to demonstrate the rationale of these depressions in the following manner:—By removing from a skull, with its brain *in situ*, the greater part of its roof, but leaving of this structure one antero-posteriorly-running arch of bone, corresponding to the sagittal, and two transversely-running half-arches, corresponding respectively to the half of the coronal and the half of the lambdoid sutures on one side, the exact position of all the main convolutions and fissures of the brain can be shown in their normal relations to these landmarks in the vault of the skull. It will make the matter plainer, and at the same time facilitate the production of similar preparations in other museums, to say that a brain, under such surroundings, presents something of the appearance in the skull which a living head does when subjected to measurement in such a cephalometer as that of M. Antelme.† By means of such a preparation it is easy to show that the post-coronal depression

* "Phil. Trans.," 1870, vol. 160, p. 148.

† See "Mem. Soc. Anthrop. de Paris," Tom. i. pl. vi. fig. 2.

in the roof of the skull does not correspond, as supposed by the late Dr. Thurnam,* to the fissure of Rolando, but to the deep, and often wide, fissure which divides the superior frontal convolution into two well-defined lobes, and abuts upon the ascending frontal convolution, by a terminal bifurcation into two arms of considerable length. This fissure, as is well known, exists, and has often been described and figured in the brains of the anthropomorphous apes, in the crania of which animals the post-coronal depression is sometimes indicated when the sagittal carina is absent. Similarly, the second of the depressions which I have noted as commonly present in the postero-inferior part of the parietals of "ill-filled" skulls, may be seen to correspond to a certain multiradiate fissure frequently noticeable on the posterior or convex aspect of the middle temporo-sphenoidal convolution, but, as far as I know, not named by any of the numerous writers who have followed Gratiolet in describing the convolutions and fissures of the cerebrum.

Professor Bischoff, however, in his well-known paper on "Die Grosshirnwindungen des Menschen,"† speaks of certain fissures, without any well-defined character, which appear on the boundary between the parietal and occipital lobes, and says that they correspond to a "fissura occipitalis externa" which appears in the human fœtus, but is normally limited in duration to the seventh and eighth months of intra-uterine life. Though brachycephalic skulls have not, as yet, been proved to have been found in Great Britain in any primary interments in the barrows of which I am writing, and though brachycephalic skulls from the United Kingdom, and, indeed, I am inclined to think, from European countries generally, are ordinarily well- and not "ill-filled" skulls, it may, nevertheless, be allowable to say here that the "brachycephalic angustiores," as Professor Cleland would‡ call the brachycephali of several other parts of the world, frequently present the depressions of which I have been writing. An excellent instance of the postero-parietal inward pinching of the skull-walls was furnished to me quite recently by a Maori skull presented to the University Museum by Dr. Batt, the skull having a latitudinal index of 79, and possessing also markedly the contour which induced Retzius to class the Maoris as "brachycephali."

* "Nat. Hist. Review," April 1, 1865, p. 267.

† In the "Abhandlungen der k. Bayer. Akademie der Wiss." ii. Class x. Band ii. Abtheil., 1868, pp. 448, 450, 495; or "Separat. Abdruck," pp. 58, 60, 105, and Taf. x. fig. 7.

‡ See "Phil. Trans.," 1870, p. 148.

When we come, however, to compare the Long Barrow people with the still surviving inhabitants of the Southern Sea Islands, a comparison first instituted by Dr. Thurnam,* we must guard ourselves from supposing that "ill-filled" skulls are by any means the rule amongst the ancient British inhabitants of this country, as they are amongst the little favoured indigenes of Australia and Tasmania. Dr. Thurnam's own tables of the capacity of the skulls and the weight of the brains of the modern English and the ancient Briton,† which show that the larger quantities characterise the older race, furnish the needful qualification to his above-cited comparison. To this I would add, that in none of the Long Barrow skulls which I have had the opportunity of measuring has the altitudinal index been found to be lower than the latitudinal; and that a point of degradation, therefore, has been found wanting in this series which Professor Busk has observed to exist in some priscan dolichocephalic skulls, and in Tasmanian and Bushman crania amongst those of modern savages.‡ The same facts may be expressed in another way by saying the "Sion Typus"§ of His and Rütimeyer, a type which Rütimeyer‖ has spoken of as characterised by "Kräftigkeit und Würde," is by no means sparsely represented in the Long Barrow series, the larger female skulls corresponding very closely with the description given by those anthropologists of that type, whilst many of the male skulls, in which the smoothly-swelling globose outlines and rounded-off contours of the female skulls are replaced by muscular ridges, vertical carinæ, and foreheads sloping in correlation with heavy lower jaws, might be taken as fair, if not precisely accurate, representatives of the Hohberg type which is so closely allied to it.

A few pathological and teralogical peculiarities will be noticed in the detailed account to be given below. It is interesting to note, that in no case have the wisdom teeth been observed to have come through previously to the ossification of the spheno-occipital synchondrosis. This is the reverse of what has been observed in certain savage races, ancient and modern, by M. Broca.¶ Perhaps the pastoral habits of these tribes may account for their conformity in this particular to what is usual

* "Mem. Soc. Anth.," Lond., iii. p. 24.

† *l. c.*, vol. i. pp. 55 and 57.

‡ See "Journal Ethn. Soc.," London, Jan., 1871, p. 467.

§ For a description of the several types of prehistoric crania, as given by His and Rütimeyer, see their "Crania Helvetica," 1864; or Huxley on "Prehistoric Remains of Caithness," p. 103, seqq. 1866.

‖ "Jahrbuch der Schweizer. Alpen." for 1864, p. 398.

¶ "Revue d' Anthrop.," ii. 1, p. 21, 1873.

in civilised races, a diet of milk, cheese, and flesh causing less injury to the teeth, and being less likely to call the wisdom teeth prematurely into use than one in which vegetable food forms a large factor. The bones of animals found in these barrows were, it may be noted, and again contrary to expectation, those of domestic breeds almost, or quite invariably.*

As regards the age of the Long Barrows, there is no doubt that, whatever other traces of the presence of man may be found in these islands, they are the earliest sepulchral evidence of his existence here. The huge cubical bulk of some of these tumuli is an *à priori* argument for their antiquity. Pristine or priscan man, like the modern savage, grudged no labour less than that which was spent on piling up a huge burial mound. My friend Mr. H. N. Moseley, naturalist on H.M.S. "Challenger," in recording his observations on the Kudang tribe of Australians living near Cape York, tells me that though they are destitute of almost everything in the way of property, having neither perforated stones to help them to dig roots—as have the Bushmen—nor boomerangs, nor tomahawks, nor any shaped stone implements, nor canoes; living, not on the available wallabies and phalangers, but on fish, reptiles, invertebrata, and vegetables; having the scantiest clothing, and sometimes, even in the cases of adults, none at all; being, finally, below savagery, as understood by a good judge of it†—Professor Nillson—in having no chiefs; they nevertheless take great pains with the burial of their dead, marking out and adorning the graves with posts, and decorating them with the bones of the dugong. It is true that the Long Barrow people can be proved to have been in a higher state of civilisation than are these miserable Kudangs, by the purely quantitative considerations—firstly, that their barrows are so large as they are, and, secondly, that they contain so few skeletons.

But when a small number of individuals can get large structures erected for their lodgment, either when dead or alive, the society in which they have lived, or are living, has attained some elevation, however low, in the road leading upwards from sheer barbarism. On the other hand, the poet of a civilised age, catching, as a poet sometimes does,‡ the essential features of

* *Per contra*, in a pit within the British port at Cissbury, *Bos primigenius* and wild-boar bones were found.

† Nillson's "Early Inhabitants of Scandinavia," ed. Lubbock, p. 167.

‡ See, in illustration of this, Wordsworth's lines, near the end of the eleventh book of the "Prelude;" or Tennyson's lines describing the condition of Britain in the interval between the evacuation of it by the Romans and the establishment of a new order of things.—"Idylls of the King. The Coming of Arthur," line 6, *seqq.*

early times with a singular, or even a scientific, accuracy, writes of a prehistoric funeral thus—

> Ergo instauramus Polydoro funus, *et ingens*
> Aggeritur tumulo tellus *—

whilst, at the same time, his friend Horace, and their common patron Mæcenas,† could utter their injunctions, and sympathise with the wishes expressed in the lines—

> Absint inani funere næniæ,
> Luctusque turpes et querimoniæ
> Compesce clamorem, et sepulchri
> Mitte supervacuos honores.‡

Considerations of less generality, but not, perhaps, less convincing as regards the early date of the Long Barrows, are drawn from the facts, that in none of them in Great Britain has any metal implement been found, at least in connection with a primary interment; that tanged and barbed arrow-heads are similarly wanting in these tumuli, so far as Great Britain is concerned, though they have been found in such structures both in Denmark and in Brittany;§ thirdly, that when they do contain burnt bones, those burnt bones are never found in urns; and, fourthly, that a very much larger proportion of the bones from these tumuli present the manganic oxide discolouration, so characteristic of antiquity, than has been observed in the series of bones from any other ancient burial places.

If it is easy and safe to speak of the Long Barrows *en masse* as being undoubtedly the oldest sepulchral monuments with which we are acquainted, much difficulty and danger attaches to any attempt at dividing the Long Barrow period into different epochs. If we know, as we do know on irrefragable evidence,‖ that two modes of disposing of the dead so diametrically different as inhumation and cremation have been practised contemporaneously, and by the same people, on the same area, it is impossible, it may be thought, to lay weight on any differences in sepulchral details for proving differences of date. Again, it may be urged, and should be borne in mind, that, in a country intersected by woods and water as Great Britain was

* Vergil's "Æncid," iii. 62.

† The line, "Nec tumulum curo, sepelit natura relictos," ascribed to Mæcenas by Seneca, Ep. 92, justifies us in thinking that Horace, in the lines quoted in the text, was not merely reproducing the epitaph of Ennius—

> "Nemo me lacrymis decoret nec funera fletu
> Faxit. Cur? volito vivu' per ora virum."

‡ Hor. Od. ii. 21—24.

§ See Thurnam 'Ancient British Barrows,' "Archæologia," vol. xlii. pp. 34 and 71, separate publication.

‖ See "Archæologia," xlii. p. 434.

in, and long after, the period we are dealing with, tribes living at what we now consider but short distances from each other, might be practically quite isolated, and develope thus entirely independent manners and customs. And, thirdly, though Diodorus Siculus has told us* that peace ordinarily prevailed between the multitudinous kings and chiefs in this island, we may set our knowledge of the condition of things, as to war and peace, prevailing among savages of the present day against this statement. I have been informed by the Rev. W. G. Lawes, who was for many years a missionary in Savage (Niue) Island, that he found that very few of the natives had ever been more than two or three miles from the place they were born in, the condition of blood-feuds which prevailed between the various septs and clans rendering it unsafe to do so. Analogous accounts are given to us by Australian travellers, and enable us to understand that very complete separation of one tribe from another may be compatible with this living in the immediate neighbourhood of, and contemporaneously with, each other. On the other hand, it is not impossible that the arrangements noted in some Long Barrows may indicate an approximation towards the practices characteristic of the Round Barrow period, and may, consequently, be considered as denoting that these barrows belonged to a later age than others in which no such arrangements have been detected. The great and cardinal difference observable between Long Barrows lies in their containing burnt or buried bodies. The immense majority of the Long Barrows in the south of England were erected for inhumation, whilst exactly the reverse of this has been the rule in the Northern Counties.

We will begin by asking whether there is any reason for supposing that the builders of these two kinds of Barrows, separated thus in space, were also separated in point of time? Some weight, though not much, may be laid upon the fact that cremation was, in Great Britain at least, the rule during the bronze age, as it is possible to suppose that the practice of cremation was borrowed by the people of the latter part of the stone age from the strangers who introduced them to the use of metal. A survey, however, of the records of the "Steingräber" of Scandinavia, Denmark, Schleswig-Holstein, and North Germany, such as is given by Weinhold in his "Toten-Bestatung," 1859; or in the 24th Bericht of the Schleswig-Holstein-Lauenburg "Gesellschaft für Alterthümer" for 1864, will not suggest that time rather than, or even in co-operation with, severance in locality, has had anything to do, necessarily, with the

* "Biblioth. Hist.," v. 21.

causation of this difference. Dr. Anderson,* however, appears to think that, in the long cairns of Caithness, burial may have preceded cremation; and it seems likely that the short cairns, whilst affined to the Round Barrows by this character of shortness, were at once later in date than, and yet genealogically connected with, the long cairns. And in the short cairns cremation was the rule. Some fragments of pottery, with a thong-pattern, closely similar to, or identical with, that so familiar to us from the round barrows, were found by me in a cremation long barrow near Market Weighton, in the East Riding of Yorkshire; and the same may be said of some pottery found with leaf-shaped arrow-heads, by Dr. Anderson, in a short cairn in Caithness. This may seem to give some stronger ground for supposing the cremation barrows to have been later in date than the other. Very similarly patterned pottery, however, is figured by Dr. Thurnam from a chambered long barrow at West Kennet, Wiltshire,† and its presence there would, of course, invalidate any argument which its presence in a cremation barrow might have tempted us to draw. That presence, however, in the Wiltshire barrow is supposed by Dr. Thurnam‡ to have been due to a subsequent intrusion into, or occupation of, this chambered barrow by the metal-using Belgæ. But the fact that much pottery, elegantly marked and delicately made, albeit not lathe-turned, has been found in Continental barrows of the stone period,§ may make us think Dr. Thurnam's suspicion somewhat unreasonable, and, if we do think it so, the argument from the presence of such pottery in the cremation long barrow in the East Riding falls to the ground.‖

If it is unsafe to suppose it to be anything more than a probability that the practice of cremation may be considered to mark a later, and the practice of inhumation an earlier, epoch in the Long Barrow period, there is still less reason for suggesting that the unchambered long barrows were anything but contemporaneous with the chambered. But a question may arise as to whether those long barrows in which the receptacle for the

* "Proc. Soc. Ant. Scot.," June, 1868, p. 508.

† "Cran. Brit.," Pl. 50, p. 3.

‡ "Archæologia," xlii. p. 72. § See Weinhold, *l. c.*

‖ As it is but a few years since it was currently held that no pottery was to be found in the long barrows, at all events of the north of England, it may be well to say that a coarse, particoloured pottery, containing large fragments of pounded pebbles and shells, which we may suppose to have been manufactured for domestic purposes, is very abundantly represented by shards in the long barrows both of the north and south of England. Pottery of similar paste, but rolled into finger-shaped masses, was found in some abundance in a long barrow (*Swell i.*) in Gloucestershire. Similar pieces of pottery, used in the manufacture of other *fictilia*, have been shown me by Sir Henry Dryden, Bart., from ancient structures in Brittany.

dead took the shape of a closed "cist," without any passage or gallery leading to the exterior, as in the chambered barrows, may not, as being more nearly approximated in shape to the cists in the round barrows of later times, have been also nearer to them in point of date. The Long Barrow in which the closed cist has taken the place of the galleried chamber is by no means so common as either the chambered barrow, or the unchambered, used for inhumation, or the cremation long barrow. A very competent antiquary* has expressed himself to me as doubting whether *true* cists are ever found as the primary places for interment in such barrows. Several instances, however, have been put on record in which there seems to be much reason for accepting the description of the existence of such cists so placed. The account of the exploration of the Littleton Drew Long Barrow, successively by Sir Richard Colt Hoare and by G. P. Scrope, Esq., M.P., given in the description of Pl. 24 of the "Crania Britannica"; and that of the exploration of the tumulus at Charlton Abbots, given by L. Winterbotham, Esq., in the "Proceedings of the Society of Antiquaries," April 19, 1866, appear to me to give trustworthy histories of such discoveries; and other examples may be found in Dr. Thurnam's paper on 'Long Barrows' in the "Archæologia" for 1869.

Weinhold† divides the Hünenberge into two classes, accordingly as they contain "cists," or chambers with galleries.‡ In a long barrow, "Swell vi.," I found what appeared to me to have been a closed cist, containing a considerable number of human remains, and also the skeleton of a dog, as will be related at length further on. This receptacle had been much disturbed, and I shall not, therefore, lay any weight upon the presence, a short distance above it, of some fragments of finer, thong-marked pottery than I have seen from any other long barrow; still, some traces of a passage or gallery leading to it would, I think, have been discovered if they had existed. The bones from this, as also from another somewhat similarly dilapidated sepulchre in the same barrow, had less of the manganic oxide discolouration than was observable upon bones from the galleried chambers in this district; and though this may be explained as being due to some chemical difference in the soil, it is also possible that it may indicate a lesser antiquity in the bones so affected, as compared with the others.

On the whole, I am inclined to think that indications are not

* So Nillson, *l. c.* p. 166, says, "Every tomb had its side gallery."

† *l. c.* p. 6.

‡ So Engelhardt, in his "Catalogue of the Antiquities in the Copenhagen Museum," speaking of the "Grabkammer of the stone age," says it "hat *bisweilen* einen niedrigern bedeckten Steingang" (p. 9, ed. 1872).

wanting which suggest to us that inhumation will ultimately be shown to have been the earliest mode of burial practised in these, as yet the earliest of known sepulchres; that inhumation in galleried chambers was probably the earliest variety practised, at least where the necessary slabs for the construction of such chambers and passages were available; but that burial without burning, and also without any cist or chamber whatever, may, in other districts not so conditioned, have been contemporaneous with burial in chambers; and finally, that inhumation in cists without passages leading down to them, and cremation, mark later epochs in the Long Barrow period. The questions are in need of further evidence for their definite solution, and they are beset with numerous difficulties and sources of fallacy.

Coming, in the third place, to a consideration of the modes of burial observable in long barrows, and the rationale to be given of them, I have to say that one peculiarity appears to me to characterise all long barrows, whether they contain burnt or unburnt bodies, and that this peculiarity is, that whether the number of bodies be large or small, they occupy but a relatively small part of the entire tumulus. In other words, the bony remains, burnt or unburnt, are huddled together in short compass, whilst, so far as we see on the first contemplation of their arrangement, they might have been disposed with little or no more trouble at intervals throughout the tumulus. A segment or two of the entire length of the barrow has been employed for the reception, all the rest has been erected for the honour of the dead. In a long barrow near Market Weighton, containing some twenty-six burnt skeletons, the whole number were found within a distance of 60 feet from its east end; of these twenty-six, twenty-one were buried in a segment of 32 feet in length, and of these twenty-one, seventeen lay in a length of 17 feet. In another barrow, also of the cremation variety, near Kirkby Stephen, and 179 feet in length, the whole number of burnt bodies amounted only to seven, but they were crowded into a segment of the barrow which was but 3 feet 6 inches wide and 12 feet 6 inches in length. A chamber 7 feet by 4 feet, in one of the Gloucestershire barrows, "Swell vii.," contained, even after having been exposed to rifling by the rustics of the neighbourhood during a period of many years, remnants of no less than nine adult skeletons. Another receptacle which I examined in another barrow ("Swell vi.") close by, and which I believe to have been a cist, though, from its having been disturbed, it is a little unsafe to speak quite positively, contained within a space of 5 feet

6 inches by 4 feet, parts of two adult unburnt skeletons, male and female respectively, parts of three children about 7 or 8 years of age, and the skeleton of a dog buried with the woman's skeleton; whilst a similar receptacle in the same barrow, examined by Canon Greenwell, contained parts of no less than ten human skeletons, all but one of which had belonged to adults, packed together within an irregularly-shaped space (for which see plan), which was 8 feet 6 inches long, and 4 feet broad at one end and 3 feet at the other. When these crowded masses of bones are looked at *in situ*, they strike the observer as having certain sets amongst them left in their natural relations and juxtapositions, whilst certain other bones have been somehow dislocated away from their normal connections. The upper cervical vertebræ, for example, I find myself to have noted as retaining, in many cases, their position of approximation to the lower jaw and the base of the skull; the same is recorded occasionally of a larger or smaller number of the dorsal and lumbar vertebræ, and of the patellæ in their relations to the tibiæ and femora, whilst portions of the pelvis, of the feet, of the humerus, and of the scapular arch, may also be found all close together. It may be well to give here an extract from the notes taken of part of the excavation carried out in a cremation Long Barrow near Kirkby Stephen, in Westmoreland:—

"Monday, Aug. 24, 1874.—Two strong adult men were represented, within a circle of 1 foot 6 inches diameter, by portions of their lower jaws, of their skulls, of their second cervical vertebræ, and of their scapulæ. A fragment of an occipital bone was seen looking upwards, with the proximal end of a right humerus on one side of it, and the distal of a left one on the other, and portions of an atlas also in relation with it. But fragments proving the presence of two odontoid vertebræ, and shortly afterwards of two lower jaws, were found close by, as also an os calcis and an astragalus, which last were less than an inch from a clavicle, whilst, finally, a number of vertebræ were found in apposition, and parts of two scapulæ were in relation with the head." In the case of a third skeleton, out of the seven found in this barrow, a patella, the only one found in the entire set was found in apposition with the proximal end of a tibia. In the cases of the bones whence evidence was drawn for the presence of four other burnt skeletons in this large barrow, it seemed from their condition of arrangement, or rather disarrangement, that they must have been disarticulated before they were burnt.

The plan employed for burning bodies in the cremation long

barrows examined by me, with the help of Canon Greenwell, as also in others examined by him previously and independently, was that of packing the bodies—whether fresh or dried, whether still in continuity, or disarticulated, along the central axis of the barrow—together with wood and stones. The combustible and transpirable mass thus formed reached half, or much less than half, the entire length of the barrow. It was bounded and supported on either side by the lateral masses of the barrow, in which, in some barrows, a system of flues for favouring draught appears to have been provided by the mode adopted for arranging the large stones of which they were made up, and which, in other barrows, appear to have been made up of turfs which would serve as non-conductors by abutting upon the central combustible strip. In the barrow near Market Weighton the turfs must have been arched over the central strip, thereby greatly favouring calcination, as in a kiln, whilst externally they were supported by lines of stone rubble, which kept them in place. This short description is sufficient, perhaps, to convince the reader of what examinations, lasting many days, convinced the writer was the case—viz. that whatever was done in a cremation barrow with more or few skeletons, was done at one time, once and for all.

There have been three theories put forward to account for the facts observed as to the human remains found in Long Barrows The first of these may be called the Successive Interments Theory. It is expounded by Professor Nillson,* who however, deals only with non-cremation, galleried tumuli. Now the very *raison d'être* of a gallery is the facilitation of successive interments; but the construction of a cremation barrow is incompatible with such an object. The second of these theories may be called the Ossuary Theory; and this, though combated by Professor Nillson, is not incompatible with his own theory, and, indeed, as regards chambered barrows, ought to have that theory combined with it. There is much evidence in its favour, as regards every variety of long barrow.

The third theory may be called the Human Sacrifice Theory, for which much evidence may be adduced from the practices of other nations, but for which the remains, as far as I have been able to judge, from British barrows do not furnish any proof.

In my account of one of the long barrows (Swell vii.), I shall describe how a skeleton was found lying upon the remains of two others, which had undergone some disturbance when the first was put in; and there is no need to labour a proof of the

* *l. c.* pp. 167, 168.

statement that the wish* of one man to be laid in the same tomb with another, his friend or his patron, is a *vera causa* for successive interments. But if the arrangement of the bones, the existence of the passages or galleries, and the feelings of human affection, as embodied in literature, and detectable, also, in ourselves, all alike speak in favour of the practice of successive interments, evidence of an equally cogent character can be brought forward to show that bodies were stored as they fell in by the death of their owners, and then buried or burnt simultaneously. The description of the structure of a cremation barrow proves the point of simultaneity, but till the theory of human sacrifice be disposed of, the acceptance of the ossuary theory cannot be held to be necessitated. Dr. Thurnam was the principal advocate of the theory† which accounted for a multiplicity of skeletons, of different sexes and ages, being found aggregated together in these barrows, by supposing that the majority of them were the skeletons of slaves or captives, slain to keep the chief company on his journey to, and in his sojourn in, the other world. That such rites were practised by the ancients, that even in the time of Homer they were looked upon as repugnant to the moral sense of mankind,‡ but that they retained vitality enough to give birth to the even worse atrocity of gladiatorial shows, we have evidence in abundance to show. But we have no evidence to show that the bones of the slaughtered victims were allowed a place in the same cist, chamber, or urn, with those of the great man in whose honour they had been massacred. Achilles, indeed, gives precise

* This wish was expressed by the prophet of Bethel in the simple injunction, "Lay my bones by his bones" (1 Kings xiii. 31), and is put into the mouth of Patroclus by Homer (Iliad, xxiii. 83, 84), in the beautiful lines—

Μη ἐμὰ σῶν ἀπάνευθε τιθήμεναι ὀστέα Ἀχιλλεῦ
Αλλ' ὁμοῦ, ὡς ἐτράφημεν ἐν ὑμετέροισι δόμοισι.

The imagery of the 32nd chapter of Ezekiel is borrowed from his recollection of successive interments.

† See "Mem. Anthrop. Soc.," Lond., vol. i., or pp. 28 & 68 of separate publication; "Crania Britannica," pl. v., l., lviii., lix.; "Archæological Journal," vol. xxii., June, 1865; "Archæologia," xxxviii. p. 413, xlii. p. 25, seqq. 1869. In this latter place Dr. Thurnam has collected a large number of passages from ancient and modern writers, in illustration of the practice of immolating victims at funerals. To these passages I would add one from Tertullian, "De Spectaculis," xii.—"Olim quoniam animas defunctorum humano sanguine propitiari creditum est captivos vel mali status servos mercati in exequiis immolabant. Postea placuit impietatem voluptati adumbrare. Itaque quos paraverant armis quibus tunc et qualiter poterant eruditos tantum ut occidi discerent; mox edito die inferiarum apud tumulos erogabant. Ita mortem homicidiis consolabantur."

‡ See "Il.," xxiii. 176.

injunctions* as to keeping the bones of Patroclus separate and apart from those of the twelve Trojan youths, the two dogs, and the four horses, slain and burnt with his body. Sometimes we find human bones scattered here and there, not only on the surface, but deep down in the mass of barrows, and I have thought that such bones, when this presence cannot be accounted for by any secondary and shallower interment, or any disturbance of a primary one, might perhaps have been parts of the skeletons of such victims. There is, however, a wide difference between leaving the remains of slaughtered victims lying about on the surface of the ground, and placing them inside a sepulchre, and the former of these modes of treatment is, I submit, the more natural one, and the more likely to have been adopted, for many reasons. The bones of a wife or concubine, who may voluntarily or half voluntarily† have given up her life at her master's funeral, may have been allowed to lie with his; but this supposition would not explain the facts of the numbers, and of the presence of both men and women in varying proportions in these interments.

Dr. Thurnam, however, based his support of the human sacrifice theory, not merely upon literary evidence, but also upon the appearances which the bones themselves from these barrows presented. Some of these bones are in the Oxford University Museum, viz. those from Ebberston,‡ referred to as being calculated to "convince the most incredulous;" and others in the Cambridge University Museum I have been, by the kindness of Professor Humphry allowed to inspect and examine. I have to say that, after repeated and careful examination of these bones, with the assistance of skilled anatomists, I am entirely convinced that they do not fairly bear the interpretation which Dr. Thurnam has put upon them. The "perfectly sharp and clean" edges of the broken bones, and the "porcellaneous character" of the fragments themselves, I happened one day to see reproduced by an accidental breakage which occurred in one of the skull-bones from the Market Weighton long barrow, and my eyes were opened to the necessity of no longer taking the theory in question for granted. On further examination, and after repeatedly submitting the Ebb-

* Οστέα Πατρόκλοιο Μενοιτιάδαο λεγωμεν
Εὖ διαγιγνώσκοντες, ἀριφραδέα δε τέτοκται
Ἐν μέσσῃ, γαῤ κειτο πυρῇ, τοὶ δ̓ ἄλλοι ἄνευθεν
Ἑσχατιῃ καίοντ̓ ἐπιμιξ ἵπποι τε καὶ ἄνδρες.
Καὶ τὰ μὲν ἐν χρυσειῃ φιαλῃ και δίπλακι δημῷ.
Θείομεν.—Il. xxiii. 239.

† See Anderson, "Proc. Soc. Ant. Scot.," May 13, 1872, p. 524.
‡ "Mem. Soc. Anth.," London, *l. c.*

erston series, of which Dr. Thurnam wrote, *l. c.*, to the inspection of others in whose judgment I had confidence, I was compelled to give the theory up.*

What has compelled me to the acceptance of the Ossuary theory, is, firstly, its all but absolute indispensability for the explanation of the appearances met with in cremation Long Barrows; secondly, the fact that, in many receptacles for unburnt bodies, the arrangement which those bodies present is not that which they would have if they had been, one after the other, disturbed to make room for fresh immigrants; thirdly, the fact that the practice of storing bodies in provisional receptacles, *en attendant* a final sepulture, is one which has been practised all over the world; and, fourthly, a consideration of the circumstances which would be likely to throw a number of corpses upon the hands of a tribe in the Neolithic age, and the difficulties which those very circumstances would put in the way of their disposing of them at once.

The first three points need no further explanation; upon the fourth I will say a few words. At the present day, with all our means and appliances, severe cold produces a high mortality; even in a small village several old people may be sometimes reported to us as being all lying dead within its precincts at one time. If this is the case in modern England, what must have been the case in neolithic Britain? and in the presence of severe frost, and possibly deep snow, how was such a population as a tribe of the Long Barrow period to get rid of its dead out of its sight? I owe a reference which throws much light on these questions to Dr. Joseph Anderson's paper in the "Proceedings of the Society of Antiquaries of Scotland," May 13, 1872, p. 526. This reference is to a passage in King Alfred's version of "Orosius," where we read that it was the custom of the Esthonians to keep the body of anyone who died one month, or even two months, or, in the case of kings, even half a year, before burning it.

In following up this line of illustration, I came upon the following lines relating to the manners and customs of the Russians, and addressed, from Moscow, to Spenser, by a lesser

* So, I think, has been Dr. Engelhardt, who has been quoted in favour of it His last account of the great Tumulus at Borreby, in the 1872 edition of his "Catalogue of the Danish Antiquarian Museum," runs thus, p. 10:—"43 G. Inhalt einer Steinkammer bei Borreby auf Seeland, welche bis an die Decksteine mit unordentlich durcheinander gemischten Skelettheilen von wenigstens 70 Individuen angefüllt war; mitten im Begräbniss raume fand man mehre gespaltene, und vom Feuer angebrannte Menschenknochen und auf dem Steinpflaster des Bodens, unter Kohlen und Asche, gebrannte Menschenknochen und das Geweih eines Rehbock's, *welches letztere vielleicht vom Opfermale bei der Einweihung der Grabstätte herrührt.* Neben den Knochen im Grabe lagen Werkzeuge von Stein und Bein, Perlen und Topfscherben."

poet, one G. Turberville. They may be verified by a reference to "Hakluyt's Voyages," vol. i., ed. 1809, p. 433. Speaking of a Russian winter, Turberville says:—

> The bodies eke that die unburied lie they then
> Laid up in coffins made of firre, as well the poorest men
> As those of greater state. The cause is lightly found,
> For that in winter time they cannot come to break the ground.

Returning from comparative civilisation to a consideration of what would be likely to happen in still earlier days, we may say that, out of a number of bodies stored up till it should be possible or convenient to deposit them finally in a tumulus, some would become more, some less, some, perhaps, entirely disjointed; for the practice of stacking or storing the dead, though originated probably by the necessities of cold weather, would be continued, as well recognised principles would lead us to expect, irrespectively of times and seasons, when it was once well established. Thus the partial retention and partial loss of the natural connections of the bones observed in these barrows would both alike receive an explanation, and be seen to depend upon the greater or less resistance which their ligaments had offered to the attacks of putrefaction.*

I will now commence a detailed account of the examination of three Long Barrows, situated near the village of Nether, or

* M. Arthur de la Borderie, Député à l'Assemblée Nationale de France, in his work, "Les Brétons Insulaires et les Anglo-Saxons du v. au vii. Siécle," when giving (p. 622) a translation from "Les Bardes Brétons," relating to the death of Kendelann, puts in italics the following words:—"*Son squelette séche encore au coin du feu.*" And in commenting upon them says—"Est-ce à dire que les Brétons eussent conservé jusqu' alors le vieil usage, décrit par Strabon, de faire dessécher les os de leurs parents et de les garder dans une coffre au coin der feu domestique?" I have not succeeded in verifying this quotation, which appears to have exceedingly important bearings on the subject of ossuaries, or at least upon that of the practice of keeping the dead body accessible for some time after death, a proceeding which terminates usually in its removal to an ossuary.

The following references to statements as to the use of ossuaries in ancient and modern times may be found useful:—

Phineas Fletcher, "Eclogues," p. 10, ed. 1771, 12mo.
G. Turberville, in "Hakluyt's Voyages," vol. i. p. 433, ed. 1809.
Falkner cit. Cunningham, "Nat. Hist. Straits of Magellan," pp. 146, 147.
Lukis, "Archæol. Journal," 1845, vol. i.
Anderson, "Proc. Soc. Ant. Scot.," May 13, 1872, p. 526.
Nillson, "Early Inhabitants of Scandinavia," ed. Lubbock, pp. 162, 163.
Grey, "Journals in North-West and Western Australia," i. 257, 1841.
Eyre, "Journals in Central Australia," ii. p. 344, 1845.
Finlayson's "Mission to Siam," p. 235, 1826.
M. Boye, "Proceedings of Soc. Ant.," Lond., ii. ser. iii., p. 310.
"Schoolcraft," i. 80, 102.
D. Wilson, "Prehistoric Man," 1865, p. 488.
Musters, "Journal Anthrop. Inst.," Lond. i. 2, Oct. 1871, p. 201.
McDonald, Ibid., p. 214.
McDonald, Ibid., ii. 2, Oct. 1872, p. 176.
Lubbock, "Prehistoric Times," ed. 1872, p. 269.
Wood, "Cruise in South Seas," p. 115, 1875.

Lower Swell, near Stow-on-the-Wold, in the county of Gloucestershire. Three persons, the Rev. David Royce, Canon Greenwell, and myself, were concerned in their examination. A large part of the investigation of the barrow first explored, and hereinafter spoken of as Swell i., was superintended by Mr. Royce alone, in the years 1867 and 1868; and to his report of what he observed in it I am greatly indebted for much of what relates to its structure. To his zeal and intelligence, exercised for a period of no less than eight years, we owe the preservation not only of valuable records of facts, but of many osteological and other relics which might otherwise have been scattered and lost. To Canon Greenwell's suggestions and advice, as well as to his very efficient help in other ways, and notably in the examination of the third barrow (Swell vii.),* at which I was only able to be present on a very few occasions, I owe a large debt.

Swell i. (Pl. iv.).—The first of the three barrows examined is situated in a field which has been under cultivation from 27 to 30 years, though it is still known as the "Cow Common." The other two barrows were found by us in 1874 to have the heart-shaped or "horned" eastward ends, which are so well known to us from Dr. Anderson's † descriptions of the "horned cairns of Caithness," as also from Dr. Thurnam's ‡ accounts of the tumuli at Uley and Belas Knap, in this very county of Gloucestershire. There is, as it appears to me, a great probability that the barrow, Swell i., was originally constructed with the same outlines and contour as these other barrows; but the eastward end had been much reduced in size by removal of the stones of which it was made up, to fill up an adjacent quarry, in the years 1867-1868; and in 1874 some indistinct traditions as to the existence in former years of curved walling at that end, were the only main specific basis—as distinct from the general likelihood arising out of its other still remaining points of resemblance to typical horned barrows—for holding that it probably had been one. Making allowances, however, for the demolitions which had taken place in the years 1867 and 1868, and, possibly enough, in years long before them, we shall not be far wrong in saying that the extreme length of the barrow from E.S.E. to W.N.W., the direction of its long axis, was from 150 to 155 feet; and that its breadth at its eastward end

* The three barrows have been numbered Swell i., Swell vi., Swell vii.; the numbers intervening between i. and vi. having been assigned to other barrows not treated of here.

† See Anderson, "Ancient Remains of Caithness." Mem. Soc. Anth. Lond., vol. i. p. 474, 1865. Proc. Soc. Antiq. Scotland, 1866-1868.

‡ See Thurnam, "Crania Britannica," Pl. v. Mem. Soc. Anth. Lond., 1865. "Archæologia," vol. xlii. p. 209.

was 77 feet; at its highest point, a point very near to the line occupied by the chamber which, as will be seen, gives the chief interest to the barrow, 69 feet; and at its westward end, 40 feet. The greatest height of the barrow, as at present existing, is about 5 feet. The ground occupied by the barrow falls slightly from the west eastwards.

In 1867, and previously to the removal of the eastward end, the Rev. David Royce discovered in the barrow a chamber of about 3 feet square, as reported, but probably of even smaller dimensions, with a gallery or passage leading down to it at a point close to its northern boundary line, and 55 feet from its east end. In this chamber were found three skeletons, and in the immediate neighbourhood, either at the same time or in 1874, parts or the whole of five more skeletons, making a total of eight, for whose reception or honour the tumulus had been piled together. The osteological remains, and the surroundings in which they were found, will be described in greater detail further on. The barrow was found to be bounded (irrespective of talus) on its north and south sides by a wall made up of the oolitic flags of the district, laid in horizontal courses; the presence of a wall was not made out at the west, nor, as already stated, at the east end. The wall was about 2 feet 3 inches in height on the south side, but was considerably less on the north, where it was in some places reduced to as few as three or four courses of its constituent flags. The north wall turned inward, to form the passage just mentioned as leading to the skeleton-containing chamber. The walls of the chamber consisted of flagstones of much larger size than those used for forming the boundary walls of the tumulus, the largest being as large as 3 feet 6 inches by 2 feet 4 inches. Some of these stones had been set on edge; some, probably, had served as covering stones. The walls of the chamber thus constituted were set inside the walls of the passage formed by the inward prolongations of the north wall. A reference to the ground plan (Pl. iv. fig. 1) will make these relations clearer. But it will also seem to show that this barrow was broader at the level of the chamber than at that of the extreme eastward end; that, in other words, this barrow was spindle-shaped, instead of being, as is commonly the case in long barrows, club-shaped, or, as in the horned cairns, heart-shaped, with the broader end eastwards. It is true that on measuring the entire mass of talus which the rubble had formed at the east end, the space thus curved was found to be 6 or 7 feet wider than the transverse measurement of the barrow, taken across the chamber. But the plan shows the limitary walls, both north and south, taking a set inwards as they pass eastward from that line. Mr. Royce

has suggested that these portions of the limitary walls do not represent the original boundary walls of the barrow for the 55 feet or so from its eastward end, but that the original outer wall ran along a line more or less continuous with that of the walling to the westward of the chamber, and that it has been removed in some unrecorded denudation of the mound. The more internally placed and still persistent walls might be but layers of stone, arranged by the original builders of the barrow for purposes of self-protection against the slipping and sliding of the rubble; just as we often observed our modern labourers arranging the stones of these barrows while we were exploring them, the same considerations of personal convenience having operated upon neolithic, as they do upon modern, stone-heavers.*

This supposition would remove the stumbling-block constituted by the representation of a long barrow tapering towards its eastward end. The ground plan (Pl. iv. fig. 1), however, represents, in continuous lines, the actual facts, as seen and measured by us; and a plan of a Barrow with a double wall at its east end, such as the Uley Barrow appears to have been,† may represent those facts as they were previously to interference. Our ground plan (Pl. iv. fig. 1) shows this conjectural restoration by dotted lines.‡ The wall of the passage which ran outside the eastward wall of the skeleton-containing chamber, I think, from a comparison of my own notes taken on the spot in 1867 with my observations made in 1874, must originally have been continued southwards as far as the south wall of the barrow, as is indicated by a dotted line in the ground plan. Looking at the barrow in 1867, I noted that a single wall, starting from the south side, "crossed the width of the heap to the opposite side, where the 'cist' was;" and a MS. note of Mr. Royce is to very nearly the same effect, viz. that "there was an appearance of walling in the very centre of the barrow, and almost through it in a line with the east end of the cist; the face of the wall was towards the west, not east." A segment of this wall, about 4 feet long, existed

* This observation of the practice of modern labourers should put us on our guard against assigning too much importance to, or searching too curiously for, a meaning for every line of walling met with in barrows made of slate-shaped stones. As regards the outer boundary walls even, the mere necessities of the case will account for the greater definiteness which they possess at the sides and west ends; though, it is true, they do not account for the peculiar heart-shape which they assume at the east ends of such barrows. For the double curve thus described, the fact that an entrance to a doorway, or gallery, or passage could thus be made with facility, may possibly account. And this contour might, on the well-known principle of "survival," be retained even when, as in the Swell barrows, there was no gallery nor chamber at the east end.

† See "Crania Britannica," Pl. v.; "Archæologia," xlii. p. 49, *ibique citata*.

‡ Compare Dr. Anderson's Plan, vii., "Proc. Soc. Ant. Scot.," *l. c.*

in 1874, in continuation of the passage wall southwards from the chamber it bounded; and another segment, about 2 feet long, took origin opposite this segment, and was prolonged northwards from the southern wall; but the intervening length, to which the testimony of one of our workmen spoke, as well as my own notes and those of Mr. Royce, had disappeared in 1874. What, however, is certain is, that westward of a line corresponding to the dotted line, *c*, in the ground plan, the barrow was crossed from north to south by a zone or strip, varying in width from 2 feet 8 inches in the region of the chamber to 3 feet 6 inches in the middle line, and differing from all other segments of the entire length of the barrow in the important particular of lodging eight human skeletons. In the chamber contained in this transverse zone were found, in 1867, parts of three skeletons, two being skeletons of adults, and one a skeleton of a child. At the same time a third adult skull was found immediately to the north, and a fourth immediately to the south of the chamber; whilst outside the chamber again, but at a greater distance to the south than the skulls, were found two headless bodies, "one about the centre of the barrow, west of the supposed central walling, and one more to the south-west." The place of this latter skeleton, which was reported to me, in 1867, as having been the skeleton of a woman, is marked in the plan (Pl. iv. fig. 1) by the word "bones"? And the apposition of this note of interrogation, borrowed, like the words given above in inverted commas, from Mr. Royce's notes, make me think that the place assigned to these bones may be a little farther south than it ought to be. Working in 1874 in this transverse zone, we found, at points varying from a spot a little south of the middle line of the barrow, four skeletons, one of an aged woman (described below under label "Swell i., 122, 9, 1874"), one a male skeleton without a head, and two skeletons of children. Portions of the headless skeleton found by us in 1874, fitted with fragments of bones found and given to me by Mr. Royce in 1867; and the later headless skeleton, therefore, may be supposed to be identical with one of the two discovered earlier, which one its discoverers did not think it worth while to remove in its entirety. But what is of consequence is to note, that after a very careful examination of all the bones obtained from the chamber, and from the transverse zone crossing the barrow in the meridian of the chamber in the year 1867 and in the year 1874, we proved that there was no proof in the entire assortment of the existence of more than eight skeletons, three of which had belonged to children, and five to adults. It is well known that many large barrows were erected for the purpose of containing only just such a chamber as the one

found in this one, and for lodging only just as few bodies as—or, indeed, often fewer than—the number found here. But it is also well known that many of these long barrows contained more than one, or even two, sepulchral receptacles, "chambers," or "cists;" and such an additional receptacle for additional dead may have been constituted by a somewhat enigmatical structure found in 1868, but destroyed before 1874, and represented in fig. 2, Pl. iv., taken from an anastatic drawing of Mr. Royce's. This structure, when discovered April 10th, 1868, during the process of carting away the eastward end of the barrow, was described as being a "diagonal oval chamber, built of small slates, after the manner of the inclosing outer wall," and as being 6 feet by 4 feet 8 inches in transverse measurements. As the figure shows, it contained no upright flags, and, as the ground plan shows, it was 25 feet nearer to the east end of the barrow than the chamber already described, and a little to the north of the middle line. When discovered, it contained the following relics: the distal end of the left radius of an adult man; the mid and ungual phalanges of an adult human subject; the clavicle of an infant; the upper molars of an ox; the last lower molar of a sheep; and the phalanx of a small carnivore, probably a weasel, as verified by Professor Owen for Mr. Royce, April 27th, 1868; and two flint flakes. Though the fact of this penannular structure having been so far away from the line of the chamber already described makes it improbable that the two bodies represented by the bones just mentioned could have been of the number of eight found to the west of that line, it is of importance to note that there is no osteological impossibility in the way of considering them to have so belonged to them. But in favour of their independent origin there is an additional fact, in the possession by me of a very much worn human temporal bone, which can scarcely have belonged to any of the five adult skeletons already spoken of, but which came from some part of this barrow, it is uncertain which.

If much is left in comparative uncertainty as to the bones contained in this structure, much more is left in uncertainty as to the interpretation of the structure itself. It is possible that when discovered in 1868 it was even then but the remains of a much larger, or, at least, a more perfect structure; and that larger or more perfect structure may have been either the remains of a heart-shaped or horned east end, or it may have been the remains of a chamber placed much as certain chambers were placed in the chamber-end barrow at Uley, already referred to as described by Dr. Thurnam. But it is also just possible that it may have been simply a stretch of walling erected as a

"block" to shore up the loose rubble, of which the great bulk of the tumulus was made. Similar structures, it should be said, have been used for sepulchres in Scottish tumuli; and if we were to remove the upright flagging from the chamber to be hereafter described (see Pl. v. fig. 3) as found in the third long barrow examined by us at Swell, that chamber would come to be very like the woodcut here annexed. But it is unprofitable to speculate further upon the real meaning of this lost structure. We tread on much surer ground in dealing with the locality in which the eight more or less perfect skeletons were found. The way in which the skeletons, three in number, were found, in 1867, to be arranged within the chamber, itself a space which was reported to me as being but 3 feet square, and which was in all probability of even less size, was described to me with much precision as follows:—There were in the middle the bones of a child; all round the north side of the cist were coiled the bones of one of the two adults, with the vertebræ *in situ*, and the legs protruding through a hole in the cist to the outside of it; whilst in the south-east angle of the cist was the other adult, "sitting up," or, as it was otherwise expressed to me upon another occasion, "squatting," with the head resting on the ribs. The covering stones, the existence of which was not noted, as also some of the side stones, must have got displaced, and the chamber had got filled with rubble.

From the chamber there came also to me, in 1867, the jaws of a very young pig, those of a cub-fox, and a part of the occipital bone of a sheep. Some other bones, of ox and of sheep, were sent with them, and may have their presence referred to the practice of feasting at graves. Bones of oxen and sheep were found in various parts of the barrow to the westward of the transverse ossiferous zone; and some of these bones, from being crumbly in consistence, and, like the human bones from the chamber and its neighbourhood, much stained with the manganic oxide, may be supposed to be of the same age. No other human bones besides those already specified were found in the barrow. Large quantities of ashes and charcoal were found here and there, both at the east and west end of the barrow. The structure, indeed, of the eastward end of the barrow, removed in 1867-1868, was reported to us as having been quite different from that of the west, and this mainly by virtue of a line of deposit of ashes along and on both sides of its centre line. This deposit was said to have consisted of heaps of ashes lying on stones, with stones again laid over them. The heaps of ashes were not in a continuous line, but were, as reported, separated by intervals of 10 feet or so. The ashes themselves were reported as being of a "pinkish, fleshy colour,

not at all like the ashes from turf-burning, and as having no grit in them, as field ashes usually have, but feeling soft and greasy when taken between the thumb and finger." Blacker ashes were also found to the north of the central deposit; and in a deposit from 8 to 10 feet to the north of the central axis were found two serrated flint flakes, stones reddened and calcined, and a splinter of glass. The presence of such an article as this last shows that the eastward end of the barrow must have been subjected to some comparatively recent disturbance—at all events, of a kind which would favour the descent of a fragment of such a modern substance as glass. As far as I could judge from excavations made in 1874, the structure of the barrow was, with the exception of the ossiferous zone, and disregarding accidental disturbances made possibly at very different times, essentially one and the same from one end to the other; the mass of the barrow consisting of slates and rubble arranged in a slant from north and south outer walls respectively, so as to meet in the middle line—as one of the labourers, employed in 1868 in carting them away, expressed it, "like the roof of a house." The slanting stones were supported externally by the boundary walls, similar walling being intercalated here and there internally for the same purpose. The converging slopes of flags and rubble had been broken into here and there in the westward half of the barrow; and in exploring one such interruption of its continuity, about 20 feet to the westward of the skeleton-containing chamber, I came upon a few bones of ox, of ancient date, mixed up with a good deal of blackish earth, amongst the rubble. Mr. Royce found a considerable number of such interruptions of the line of the barrow in its westward half, ashes, and bones of lower animals, being found in them. Some of these interruptions of, or alterations in, the arrangement of the component elements of the barrow, may have been coeval with it; those at the east end may have been later—I am inclined to think very much later—than that period. In this matter Mr. Royce does not agree with me.

There was found in this barrow a considerable quantity of pottery, some of a coarse blackish kind, resembling that obtained by me in considerable quantity from a Long Barrow at Market Weighton, and like that, also, in having been intended for domestic uses; and some of the same black and red paste, but cigar-shaped, and intended, as Sir H. Dryden pointed out to me, for use in pot-making, as in Brittany. The pottery was reported to have come from parts west of the middle of the long axis of the barrow, nearer its north than its south wall, and from no very great distance downwards in it. A coin of

Constantine was found in the same locality, but very near the surface.

It may now be well to put distinctly on record what we personally observed in 1874, whilst making certain sections to clear up points left undecided by what had been done in 1867 and 1868.

In clearing out the space already spoken of as the transverse zone, containing the ossiferous chamber, and that part of it which ran southwards from the chamber, parts or the wholes of four skeletons were come upon. And the first points, perhaps, to be noted about them are that they were not laid upon the natural soil, as has sometimes been observed to be the case—as, for example, in another Long Barrow in this neighbourhood—but that they always had some slaty rubble interposed between them and it, and that two of these bodies lay to the south of the long axis of the barrow. These facts may seem to some to be an argument in favour of Professor Nillson's view * of the bodies having been introduced at successive periods into such tumuli, and of explaining thus those marks of disturbance which have induced other writers to have recourse to the hypothesis that these ancient, like certain modern savages, used their tumuli as ossuaries. The first body found was that of an aged woman, lying (on the right side?) in the contracted position, with the vertebræ *in situ*, about 4 feet 6 inches from the top of the barrow, and from 2 inches to 4 inches from the natural surface of the ground, which was separated from the skeleton by a layer of stones. In front of the legs of the woman, and quite close to them, was the skeleton of a child, in possession of the full milk dentition. Charcoal lay in small quantities all about the bones of the two human subjects, and mixed up with them were the bones of voles. As the trench was carried up towards the chamber, the bones of another child, considerably younger than the former one, were found scattered about in it; and, finally, in the nearer neighbourhood of the chamber was found a considerable part of a headless male skeleton lying on its right side—as there are indications to prove, from the wear of the bones, irrespective of notes taken or not taken at the time, that nearly all the skeletons from this chamber, and its neighbourhood, were laid. The head of this skeleton, if it was not buried in the headless condition in which we found it, must have lain or been propped against the eastward wall of the zone or trench. The very cramped position which it would thus have occupied may seem to favour the notion of its having been thus headless when first deposited, a notion which the discovery

* "Primitive Inhabitants of Scandinavia," ed. Lubbock, p. 168.

of heads buried separately in other barrows* might, in the absence of other considerations, serve to confirm. The patella, tibia, and fibula were *in situ*, as well as the clavicle, first rib, and the upper end of the humerus of the right side, and some of the dorsal vertebræ; but much breakage had taken place, and parts of a fibula and tibia of the left side found in relation with these bones by us in 1874, were found to be parts of bones taken up by Mr. Royce in 1867, and given by him to me, showing that much disturbance had taken place then, and render it unsafe to suppose that any of the dislocations of the trunk bones, or, indeed, the separation of the head, may have dated from the time when the body was first put into the barrow. With what was actually seen by us in 1874 must be coupled what was reported to us from 1867, and this went to the effect that two headless bodies were found in this transverse strip of the barrow, west of the central walling, and that one of these lay about the centre of the barrow, and the other further to the south-west; whilst all the skulls, five in number, discovered in 1867 were in, or in the immediate neighbourhood of, the cist. The cist or chamber itself contained three bodies in 1867 undisturbed—at least to any recognisable extent. The fact that some of the entire number of eight bodies were found at a considerable distance from the skeleton-containing chamber, and that they were found without any of the upright flagging with which those of the other skeletons were placed; and the fact that two skulls, which may be supposed to have belonged to the two headless skeletons, were found placed close to the chamber, one on its north, the other on its south side, seem, when taken together, to indicate that the three skeletons in the chamber were interred at one time, but that time one subsequent to that at which the bodies found headless were interred, and that the skulls of these latter were removed at that time from their natural connections, and placed near the chamber. It is, however, plain that such an explanation as this combines the ossuary theory, which it would employ for the skeletons found undisturbed, with the view of holding that these interments are to be considered the successive interments of a family powerful enough to command the use of a barrow, which view it would employ for the skeletons found at a distance from the chamber. It is possible that it may be right so to combine these views.

Osteology and Craniography.—A few general remarks may be made as to the entire collection of human bones obtained from the long barrow, "Swell i.," before we proceed to give in detail the craniography of the skulls which have admitted of recon-

* See Prof. Unger, "Götting. Anth. Verein," i., 1874, pp. 32—33.

struction. We have definite proof of the presence of eight skeletons in this barrow; of these eight skeletons, three belonged to children, and five to adults. Of the five adults, four had been aged; of the four, two had been men, two women. The fifth adult had been a man of from 24 to 30 years of age. Of the three children, one was about 2 years old; the other two were about 7 months at most. The four skulls which belonged to aged adults have been reconstrueted. The skulls of the two adult females will be observed to differ greatly in size, the one being very large, the other very small; whilst the two adult female skeletons resemble each other in a point eminently characteristic of savage life—to wit, in showing that their owners were disproportionately short in stature, as compared with the male members of their tribe. The leg bones of the females give them a stature of 4 feet 10 inches and 4 feet 9 inches, against a stature of 5 feet 6 inches in the males; and a similar tale is told even more emphatically by a comparison of their respective collar-bones. The average difference between the male and female stature * of civilised races is about half this amount.

In two cases of the aged adults considerable loss of teeth had occurred before death; in the two others, precisely the reverse was the ease. The young man, as might be expected, had retained his entire complement of teeth—in the upper jaw, at least, which alone we recovered in his ease. The male lower jaws have the alveolar portion of the mentum relatively larger than in modern races of Europe; and in two lower jaws, one belonging to a male, the other to a female adult, the mental foramen is placed further back than is usual in European jaws. The tibia of four, if not of all the five adult skeletons proeured from this barrow, are more or less what Professor Busk † has called "anteriorly platycnemic." Though the femora from this barrow were not markedly carinate—which, indeed, we should not have expected to find them to be, as correlated with this variety of platycnemic tibiæ, all the bones had their muscular ridges well pronounced and defined, as though their owners, if not of very great stature,‡ nor, as is probable, of the very poorest grade amongst a savage tribe (all of whom, however, are always poor), were yet in the habit, whether from choice or necessity, of using considerable muscular force.

* See "Archæologia," xlii. p. 447.

† See "Journal Eth. Soc.," London, Jan. 1871, p. 459.

‡ For the large size of the chiefs in savage tribes, see Whitmore, "Contemp. Rev.," 1873, p. 392; Brenchley, "Cruise of the Curaçoa," p. 137; Erskine's "West Pacific," pp. 155 and 240; Forster's "Observations," p. 229; Ellis's "Polynesian Researches," ii. 26.

Several of the humeri, for example, had the deltoid ridge very strikingly developed, as though their owners had laboured at lifting the stones of the barrow which was one day to cover them. One of the humeri, it may here be noted, and that, as M. Broca has noted* to be usually the case, a female's, had an olecranic perforation. Two scapulæ, with unanchylosed acromial processes, were observed here, a fact of small consequence by itself, but pointing, when taken in connection with others, to the probability of blood relationship having existed between the several occupants of the tumulus.

In their texture, colour, and manganese discoloration, all these bones resemble each other pretty closely, and convey to the mind a strong impression of their antiquity.

Craniography.—Shell i. (a).—Skull of woman, past middle period of life. To this skull probably belong an upper and a lower jaw, and a femur, labelled accordingly, and giving a stature of 4 feet 9 inches; as also a couple of very small clavicles, and a very slender radius.

Ext. length, in inches	7·65	Ceph. ind. (approx.), but the skull is broader as restored than it was in nature	78
Ext. breadth (approx.)	6·0		
Ext. height (approx.)	6		
Circumference . . .	22	Interangular lower jaw	3·8
Least frontal diameter	3·9	Ant. post. index†	90:195
Greatest frontal . .	5·1	Basilar angle (approx.)‡	10

This, though a very large calvaria, must nevertheless be a woman's, not only for the intrinsic reasons of the verticality of its forehead, the comparative verticality of its parieto-occipital region, the general smoothness and roundness of all its outlines, and the small size of its supra-orbital and mastoid ridges, but also for the extrinsic reason that from the cist and its neighbourhood evidence of four other adult bodies is before us, one of these being a woman's skeleton nearly entire, the other three being undoubtedly male skulls, accompanied, however, by a second set of adult female bones, which can only be referred to this skull.

The first thing to be remarked, perhaps, is the enormous difference of size of the two female skulls, and the consequent unsafeness of saying that men and women are or are not of

* "Mémoires," ii. p. 366, 1874.

† By "antero-posterior index" is meant the relation held to the extreme length by that part of it which lies anteriorly to a line drawn as a tangent to the anterior border of the auditory foramen, and cutting the line of extreme length at right angles. It is easily taken by fitting an indicator to M. Broca's "cadre à maxima." It shows the degree of frontal development, and, *per contra*, of occipital dolichocephaly.

‡ Taken with M. Broca's Goniomètre occipital. See "Rev. d. Anthropologie," ii. 2, p. 202, 1873.

much the same size in savage races. There is some indication of a post-coronal furrow in this skull, to which some internal thickening corresponds, as is usual. This skull would be spoken of as belonging to the Sion types, just as skull (*c*) would be referred to the Hohberg type of His and Rütimeyer.

The lower jaw, which with much probability can be referred to this skull, is feeble, riding up from the level of the mental foramen forwards, which foramen, however, is further forward, being in the plane of the first premolar, than in some other lower jaws of this series. The teeth are much and horizontally worn; the wisdom teeth were never evolved, in correspondence with which fact the smallness and absence of wear of the wisdom teeth, in an upper jaw probably belonging to this skull, are to be noted. The ramus forms an oblique angle with the body of the bone.

Swell i. (b).—Skull of a man past the middle period of life. The cranial bones are thick, and the pits for the Pacchionian bodies well developed. To it probably belongs an old upper jaw. The lower jaw, probably belonging to it, indicates age by the wear of its teeth and the loss of all its molars, except one on each side. The jaw is somewhat atrophied in consequence of this, and the ramus lies obliquely to the body of the bone.

Ext. length in inches	7·6	Occipital arc . . .	5·0
Ext. breadth . . .	5·4	Entire arc	16·8
Vert. height . . .	5·8	Ceph. index (approx.)	70
Absol. height . . .	5·7	Basilar angle . . .	30
Frontal arc . . .	5·2	Ant. post. index .	110 : 192
Parietal arc . . .	5·6	Basi-cranial axis . .	4

The high basilar angle of this skull shows that if it had retained its maxillary bones and teeth it would, in all probability, have rested upon its occipital condyles and teeth when placed on a flat surface. Having a high figure for its vertical arc, coupled with the ordinary length of basi-cranial axis, its cranial vault has been rotated forward so as to throw the bregma far (viz. $\frac{8}{10}$ths of an inch) in front of a line drawn from the auditory foramen upwards at right angles to a horizontal line. The highest point in the vertical contour is 2·1 posterior to the coronal suture, and from this highest point the parietals slope over, so as to form an equable incline with the superior occipital squama. There is a very large occipital spine which hinders the exterior surface of the skull from showing any great difference between the glabello-postremal and the glabello-inial diameters. The conceptaculum cerebelli, though sloping upwards, is yet far from approaching the vertical line as nearly as in typical brachy-cephalic skulls. The forehead slopes gently from the line of

the largely-developed supraciliary ridges to that of the frontal eminences, after which it passes, with greater obliquity, into the upwardly-inclined plane of the anterior halves of the parietals. The frontal is markedly carinate, its mesial elevation passing continuously onwards into the still better marked parietal ridge, on either side of which a post-coronal depression is visible exteriorly, corresponding with an inwardly-looking convexity of the inner skull table. It presents a well-marked pentagonal outline when viewed in the occipital norma, the parietal tuberosity being nearly as well marked as the mesial vertical carina.

Swell i. (c).—Netherswell, Dec. 1867.—Strong man, past middle period of life. To this cranium may probably be assigned the femur, measuring 18·4 in., as also the bones found *in situ*, September 22nd, 1874, but without a head. The other two male skulls are either too old or too young to have these bones assigned to them; the stature of this man would, therefore, have been 5 feet 6 inches.

Glabello-inial length	7·9	Parietal	5·1
Ext. length	8·2	Occipital	5·2
Ext. breadth	5·3	Ceph. index	64
Vert. height	5·7	Ant. post. index	115:210
Least frontal	4·1	Circumference(approx.)	22·3
Frontal arc	5·2	Basilar angle (approx.)	32

Typically dolichocephalic skull—Orthognathous.—Large supraciliary ridges, from which forehead slopes only slightly. The highest part of vertical contour is at coronal, when the head is held with the vertical line joining coronal suture and auditory meatus. The parietals slope very gradually to the occipital squama, which possesses a considerable length, looking vertically. In the norma lateralis nearly the whole of the parieto-occipital suture of that side comes into view. In the vertical view this skull is typically elongato-oval; there is some slight constriction immediately behind the region of the coronal suture; the broadest part of the skull is below and a little in front of the parietal tubera. The skull walls are compressed from side to side below the level of those eminences, and taper rapidly to the occipital squama. The sagittal suture is partially obliterated. Viewed from behind, the roof of the skull falls rapidly from the middle line to the region of the parietal tubera, and its walls converge again in the region of the squamosal. The orbital and supraciliary ridges occupy a plane anterior to that occupied by the commencement of the brain-case. The mastoids and temporal ridges are well developed.

The palate is narrow, deep, elliptical; the teeth much worn,

in a slanting, not a horizontal direction. To this skull may, with much probability, be assigned a lower jaw, with teeth similarly worn. Its angle is well defined and flanged outwards, and the body of the bone is emarginated anteriorly to it. The mental prominence is well marked, and, though narrow, is divided into two processes, one on either side. The alveolar part of the front of the jaw is deep. The mental foramen is further back than is usual in European skulls, being in the plane of the second premolar.

Swell i. (d).—Part of frontal, and right molar and maxillaries of a strong young man, æt. 20 to 24. The frontal appears to have been vertical up to the tubera, which are low down, and then to have sloped very gradually to the coronal suture. The temporal ridges are greatly developed.

Orbit width	1·65
Orbit height	1·3

The wisdom teeth are in place, but have been very little used. The supraciliary ridges are large, but are not underlaid by sinuses.

Swell i., 22, 9, 1874.—Imperfect calvaria of old woman, 4 ft. 10 in. in stature, dolichocephalic both by contour and by measurement. It contrasts very markedly, as regards size, with the other female skull procured from this barrow, into the inside of which it could be put, though its owner was an inch taller (4 ft. 10 in. as against 4 ft. 9 in.) than the owner of skull in *Swell i.* (a). This skull might be taken as a fair specimen of the River Bed type of Professor Huxley, the larger as a fair specimen of the Sion type of His and Rütimeyer.

Ext. length	7·1	Occipital	4·2
Ext. breadth (approx.)	5·0	Cephalic index . . .	70
Vert. height . . .	5·3	Femur	16
Frontal arc	4·9	Ulna	9·2
Parietal	5·4	Stature . . .	4 ft. 10 in.

The forehead is vertical; the highest point in the vertical contour lies about an inch posteriorly to the coronal suture; the posterior half of the parietal curves evenly into the slopes of the superior occipital squama. The cerebellum was much overlapped by the posterior cerebral lobes. The lower jaw is feeble. The mental foramen corresponds to the interval between the second bicuspid and first molar. The teeth are very much worn down, and there are two or three alveolar abscess-cavities in the jaw. One very large one occupies a great part of the molar region of the left upper maxilla.

Many of the vertebræ, from the cervical downwards, are

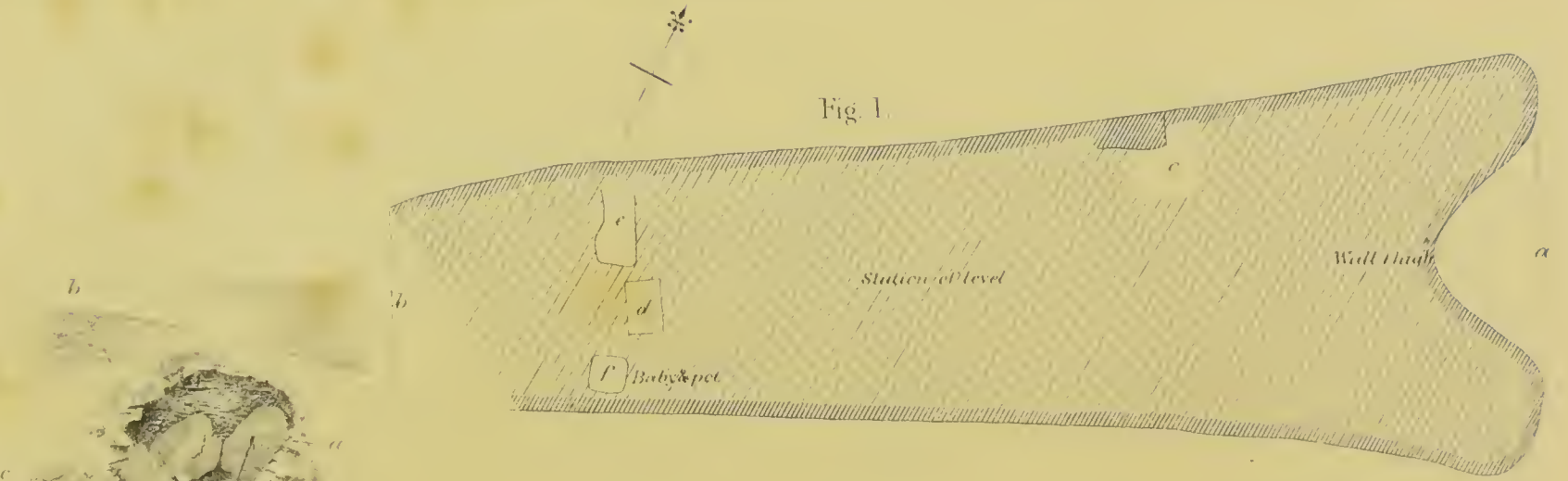


Fig. 3.

FIGS. 1 & 2. GROUND PLAN AND LONGITUDINAL SECTION OF LONG BARROW, "SWELL VI"

FIG. 3. CHAMBER AND GALLERY FROM LONG BARROW, "SWELL VII."

beset with exostoses, but they are not anchylosed. The tibiæ were not sufficiently well preserved for me to decide whether they were platycnemic, as were all the other four adult tibiæ. The femur is very much flattened in the region of the insertion of the glutæus maximus, but there is no flanging out beyond the plane of that insertion. This flattening is not rare in ancient skeletons with skulls of very various kinds. It has been noted by Holder* as existing in his "Ligurian" type. Only a few of the bones of this skeleton have become stained with manganese.

Swell vi.—Long Barrow in field known as "Long Ground," two miles west of Netherswell, Eyford, co. Gloucester (Plate v. figs. 1 & 2.) —In the field next beyond the one lying on the left side of the road leading from Netherswell to Naunton, at the bottom of the first descent, and about two miles from the former place, we, that is to say, the Rev. David Royce, Canon Greenwell, and myself, examined, in September, 1874, a Long Barrow of very similar form to the horned tumuli described by the late Dr. Thurnam† and by Dr. Joseph Anderson, from parts of Great Britain as far apart from each other as Gloucestershire and Caithness respectively. A plan (Pl. v. fig. 1) taken by Sir H. Dryden, Bart., who visited the spot, and gave us the advantage of his experience, will enable anyone who wishes it to take the measurements of this barrow in detail. It is sufficient here to give the following particulars:—The broader end of the barrow was at E.N.E., and here the outlines of the two horns‡ were distinctly traceable; the westward end of the barrow had suffered more from agricultural operations than the eastward. The distance, however, from this end, as restored, to the centre point of the eastward end, was 108 feet. The distance between the tips of the two horns was 44 feet; the barrow tapered gradually from this, its extreme width, to a width of 24 feet at its westward end. The height of the tumulus was about 4 feet, on an average, but allowance must be made for possible diminution by farming processes. The two horns were not symmetrical, the north-eastern being the longer and slenderer. The limiting wall was made of the slate of the district, being Stonesfield oolite, arranged in about fourteen horizontal rows, and forming a boundary about 2 feet wide and 1 foot 9 inches high. The body of the barrow was formed of stones, with a general inclination inwards towards the middle line from either side; and in the middle line, here and there, a blackish seam was to be seen, due, I think, to accidental detritus of

* "Arch. f. Anthropologie," ii. p. 54. † See above.

‡ The Gloucestershire tumuli appear to differ from the Scottish, in having only two horns, and those at the eastward end.

vegetable and other rubbish, during disturbances, in past time, of the barrow.

This barrow contained four more or less disturbed "chambers," or "cists," the position of which will be seen by reference to the ground plan. In the case of the first of these receptacles of the dead, which was the one which had suffered most in the way of disturbance, there can be no doubt that the term "chamber" is the right one to apply to it, as the limitary wall of the barrow formed a passage leading down to it; but in the case of the other three, this passage was not found to exist, and though the end stones, which give a "cist" its distinctive character—that, namely, of being closed on all sides—were not found *in situ*, it is easy to understand how they may have been the first to be moved, when the plough was first driven across the barrow, at right angles to the long axis of which they stood.

The "chamber" having been most completely ruined, we can with certainty depose to the presence of no more than two bodies as having been found, represented by fragments in its immediate neighbourhood, and as having, consequently, with some likelihood, been once contained in its interior when intact. One of these had been an adult, one a child, with the milk dentition only in place. The bones of the adult were discoloured with manganic oxide, as were those of an ox and horse found with them; those of the child were not.

Of the three other receptacles, "cists," or "chambers," for the dead, the first examined contained portions of the bodies of two adults and four children, together with the larger part of the skeleton of a young dog, and some other domestic animals' bones. The second contained portions of ten skeletons, all of which, with one exception—the skeleton of a boy or girl—had belonged to adults, whilst the fourth contained only one skeleton, that of a person between twelve and sixteen, with whom a fragment of coarse domestic pottery was found.

September 25, Friday.—The first operation in the way of examining this barrow took the shape of cutting a trench across its eastward end, at right angles to its long axis, at a level which subsequent examination showed to be about 8 feet to the westward of the central concavity of the horned eastward end.

At about 17 or 18 feet westwards from the centre point of the eastward end were found some bones of a child, with the milk dentition in place, about 2 feet or half-way down in the barrow. Parts, also, of an ulna, of a tibia, of the phalanges, and of both temporals of an adult, were found at about the same distance from the east end, and at a point a little south by west of the middle line. In the middle line of the barrow at this distance from the east end was a blackish seam of about 6 feet

6 inches in width, containing bones, but limited in the eastward direction by masses of stones, under which also were found a few fragments of human bones, adult and young. Amongst the bones from this part of the barrow was one fragment of burnt bone, possibly human, as well as some teeth of ox and horse. These teeth, as also the human temporals, were stained by the manganic oxide. These appearances were difficult of interpretation until we came upon the ruins of a "chamber," about 6 feet or so further to the north-west, the destruction of which, and the scattering the contents of which, may explain the blackening of the central strip of the barrow observed here, as also the presence of the human bones. The single burnt bone, whether human or not, may have been an accidental importation. Some adult teeth of *Bos*, from the south side the barrow, found together, are beautifully coloured by the manganic oxide.

September 26, Saturday.—A piece of the parietal of a human subject, beyond the period of childhood at least, a considerable development of diploë having taken place in it, was found at the bottom, to the south of the middle line, under the slaty, slantingly-arranged rubble, not under the central deposit, at a point about 27 feet from the centre point of the eastward end. On a level with it, as regards the long axis of the barrow, but close to its northern wall, we came upon a stone, 4 feet 9 inches long, 3 feet 2 inches high, placed on its edge, and sunk some way into the natural soil. It had its long axis at right angles to that of the barrow, the wall of which, as afterwards discovered, formed a passage, 4 feet 2 inches wide, leading down to it. Another large stone, 2 feet 10 inches long, 3 feet 3 inches high, also standing on its edge, abutted on the inner end of the first stone, and projected in a south-westerly direction into the barrow; and two other large stones were lying flat near the upright ones. There can be little or no doubt that these stones represent what was once a chamber, such as that found in the Long Barrow, Swell i.

On this day some few bones of mammals and birds were found in the barrow, west of the line of the cist, and some way above the level of the natural ground. The mammalian bones belonged to ox, sheep, pig, dog, vole, and rabbit: the larger bones amongst them appeared to be ancient; whilst the smaller, like the bird-bones, some of which belonged to a goose, and some to a fowl, and some to a bird smaller than a pigeon, may have been comparatively recently introduced into the barrow. None were stained with manganese.

September 28, Monday.—A fragment of a tobacco-pipe was found low down, in fact, on the natural soil. On this day the Rev. David Royce came upon the boundary-wall, which had

two prolongations inwards, to meet the chamber represented by the large stones mentioned above, and formed thus a passage 4 feet 2 inches wide. The remainder of the day was employed in tracing out the two horns of the east end of the barrow.

September 29, Tuesday.—At a distance of 46 feet from the apex of the re-entering angle, in the centre of the east end, we found the skeleton of a child of about 5 or 6 years of age lying just outside the boundary-wall, on the south side of the barrow. The child had been buried in the contracted position, and had been laid upon the right side, with one hand at its face and the other upon its hip. The teeth have the same purplish blackening, due to manganese, upon them, which has been so often observed in these long barrow bones from chambers.

On this day we came upon what I believe may have been the ruins of a "cist," *i.e.* of a closed grave, walled in with slabs, and without any passage leading to the exterior such as has been noted in the other barrows, and also in this, and as would have justified us in speaking of it as a "chamber." It was 80 feet from the re-entering angle at the eastward end, and being about 5 feet 6 inches by 4 feet, had its long axis at right angles to, and in the middle line of, the barrow. In this cist were found parts of two adult human skeletons, one belonging to a strong man, the other to a woman past the middle period of life; of the skeletons of three children of from 7 or 8 years of age; of one child, of about 2 years of age or less; of a dog's skeleton, lying *in situ*, and close to the bones of the old woman, as also scattered bones of ox and sheep. The bones themselves, closely packed at first, had been much disturbed subsequently, as had also the cist itself. An indication of this was furnished to us by the discovery of the fragments of a drinking-cup only a couple of inches from the surface of the soil over the barrow. This cup was of a not uncommon pattern, thong-made; and with its paste red outside and black inwards, but was somewhat thicker than "drinking-cups" are usually. It had probably been interred with a body of a later period than those buried in the cist, and had come into the position in which we found it in consequence of agricultural or other disturbance of the place. To such other disturbance the following appearances seemed to speak. The bones seemed in a few cases to have been left, partially, at least, *in situ;* but in many cases I found a few bones between a couple of slates, the lower of which, in its turn, overlaid a second set of bones. This would appear to be explicable by supposing that, the roof of the cist being removed, its contents were taken out partially, and then thrown in again, with any rubble which came to hand, so as to fill the cist up again.

It is not safe to say what the precise size of the cist had been originally, but it may have been somewhere about 5 feet by 4 feet. The bones contained in it, when examined by me, were disposed as follows:—The first bones come upon were bones of children, some of which had apparently been left *in situ*, and upon the left side, whilst others had as evidently been disturbed. As there were no less than three children with the first permanent molar in use, but with no more, or with only the first incisor of the second set in addition, and consequently all three between 7 and 8 years of age, in this cist, and the western half of it, and, besides them, a child of 2 years, or something less, it is a little difficult to be quite sure how many of so many similar bones had been placed *in situ*. None of all the bones lay upon the natural ground, but all had a flagstone interposed between them and it. On the south side, and, I think, at the south-west angle, part of the lower jaw of a strong adult and the atlas were found near each other. Further east, under one large flagstone, were lying the patella of a strong adult male and some bones of a skull of a child. Of course, these bones must have been disturbed to get thus into company with each other, and with no other bones between two flagstones. In the middle of the cist were found some of the bones of a youngish dog, and amongst them its lower jaw, which show it to have been about the size of an English mastiff; and in the same situation were bones of ox, of sheep, and of several human subjects, young and old. But the most striking "find" in the cist was in the north-east corner. There, between two large stones, were found, lying *in situ*, the femora, humeri, ulnæ, radii, clavicles, pelvis, ribs, and many vertebræ of a woman past the middle period of life. She had been laid on her left side; and between her chest and the north wall of the cist lay the pelvis and leg bones of a young dog, which we may, with some probability—bearing in our recollection the interesting account by an eye-witness, Ahmed Ibn-Fozlau, of the incremation of a Norse chief, translated for us by Holmboe and Anderson*—suppose to have been put into the grave to keep his aged mistress company, there and elsewhere. The woman had been laid so that her skull just projected beyond the slab upon which the upper trunk bones were laid; and the skull had just escaped from being smashed, when the top stone fell in, at the cost of being carried off, probably by some mediæval or later tomb-riflers, and so lost to us. Half the lower jaw was still *in situ*, and has been recovered.

Swell vi., Cist 1.—Under this slab, together with the dog and

* "Proc. Soc. Ant. Scot.," May 13, 1872. Compare Nillson, "Primit. Scandin.," ed. Lubbock, pp. 110, 150; "Frilford Graves," p. 9; "Archæologia," xlii.

man, were the thigh bones of one of the children, and also femur of sheep. The lower jaw of the old woman was feeblish, as compared with some of the male jaws, but not with all, from these barrows. It had lost no teeth from the half we recovered, during life, though the teeth were very much worn down, and the first molar, notably, down to its fangs; in connection with both of which there were alveolar abscesses.

The femur, 16 inches long, of the woman, laid in company with the young dog, gives a stature of 4 feet 10 inches. It is considerably flattened from before backwards, in the region of the insertion of the glutæus maximus, but the insertion of this muscle is at the free edge of the bone. The whole bone, and others with it, under the label, "*Cist in situ*, Swell vi.," gives the idea of their owner having had hard work and poor food, being, as they are, slight, but with rough ridges. The other adult bones may have belonged, and probably did belong, to a man beyond the middle period of life, of moderate strength; many of the bones are exostotic, as would be expected in the bones of people of such early times, living in a bleak upland country, such as the neighbourhood of Swell.

From the contents of this cist a child's skull has been reconstructed by Mr. Wm. Hine. Æt. circa 7 or 8.

Ext. length . . .	6·5	Least frontal . . .	3·4
Ext. breadth . . .	5·1	Lowest frontal . .	4·5
Vert. height . . .	5·3	Ceph. ind.	78

This is a high cephalic index, but its height is explained by the skulls having been reconstructed in the interests of brachycephalism, a direction the reverse of what is usual in reconstructed or shrunken skulls; and that this is so, is demonstrable from the fact, that one of the temporals will not fit in between the parietal and frontals.

The interior of the frontals in this skull are richly, and the interior of the parietals more sparingly, covered with vascular osseous upgrowths, just as (skull E, May, 1864, Long Wittenham, Univ. Museum) in many skulls in which the widening of the lower jaw, and with it the easing outwards of the lateral walls of the skull, begins to put an end to the constant pressure which the brain previously kept up upon the skull's interior surface.

Some of the bones from this cist are encrusted with stalagmite, notably those of the old woman, but none of them have any manganic discoloration. One of the humeri of the old woman, the right one, has an olecranic perforation, this peculiarity being in the bones from these barrows, as in some other cases*

* See Broca, Mem. ii. p. 366.

observed in the female more frequently than in the male bones. Many of the bones are beset with exostoses, as in the bones from Swell i.

September 30, Wednesday.—On this day a third receptacle, "cist," or "chamber," was found to the north of the one just described; it was 4 feet 6 inches wide at its widest part, 3 feet at its narrower, which occupied three-eighths of its entire length of 8 feet, so that it had somewhat of the shape of a bottle. Its long axis, as was the case in both the other similar receptacles, ran at right angles to that of the barrow; its narrower end was within a couple of feet of the north wall of the barrow; its south-east angle was 82 feet from the re-entering angle of the east end. Within this "cist" or "chamber" were found parts of no less than ten skeletons, of which Canon Greenwell, who superintended the examination of it in my enforced absence, speaks as follows: "It was very difficult to say whether any body was entirely undisturbed, though some had some of the bones in their relative positions. The six bodies" (found on the first day) "were huddled into so small a space, and the bones were so much broken, that it was impossible to make out the relative position of the bones of the several bodies. I think, however, that some, if not all of the bodies had been placed in the cist in the flesh, or, at all events, when the ligaments were there. . . . . All the skulls seem to be at the south side of the cist. . . . . These cists are very puzzling. . . . . I do not think they have been tampered with in late times, and the whole appearance suggests an ossuary."

On October 2 (Friday), Canon Greenwell wrote that the "cist has had ten bodies in it, and some certainly in position, if all were not. I incline to the ossuary theory more and more." Details as to the osteology of this rich "find" will be found further on.

Another "cist" or "chamber" was discovered on the same day as this, making up the entire number of receptacles for skeletons, "chambers," or "cists," to four. In it were found the bones of but a single individual, a young person between the age of twelve and sixteen, the upper epiphysis of the ulna being unanchylosed, whilst all the permanent, except the wisdom teeth, were in use, and an urn of black, coarse ware of quite different character from the one already spoken of as found placed superficially to the second "cist." This cist was about 4 feet square; it was close upon the southern wall of the barrow, and about 85 feet from the re-entering angle of its eastern end. The fact of this cist having but a single occupant, and this occupant being a young person, and being accompanied, which was not the case with any other skeleton found in these long

barrows, by a food-vessel, are not unimportant. In this barrow, as in the two other long barrows examined by us in this locality, and also in the cases of certain other Gloucestershire long barrows, and in the case of the long Scottish cairn, Camster, in Caithness, no burial had taken place at the east end.

Osteology.—(Swell vi., C 2).—From the "chamber" or "cist" No. 2, examined by Canon Greenwell, and labelled *Swell vi. C* 2, we have evidence, through the lower jaws recovered by him, of no less than ten bodies having been interred in it. Of these bodies only one had belonged to a person below the age of puberty, this one having belonged to a boy or girl of eleven to twelve years of age; six had belonged to persons past the middle period of life, one to a young man with the wisdom tooth just coming into use, a ninth to a man in whom that tooth had come into use, but had had only little wear, and a tenth to a woman in the same condition of dentition. Three of the ten appear to have been women, two of whom were aged, and one probably about thirty years of age; four appear to have been strong men, past middle life, but the sex in one case is doubtful; one of them had been a strong man of about thirty. The lower jaw of the sixth male subject, in which the wisdom teeth are just rising into use, does not enable one to predicate much as to his strength beyond what is implied in assigning it to the male sex. All the lower jaws except three lie evenly from angle to mentum, when laid on a horizontal surface; only one has the foramen mentale further back than it is found to be in modern European specimens. The alveolar portion of the mental region has not the same relative development as is observable in several of the lower jaws from the other long barrows of this district, and this and some other osteological considerations, approximating these skeletons to later, rather than earlier, Celtic types, when coupled with the fact that these bones are much less stained with manganese, and that the grave containing them was most probably not connected by a gallery or passage with the exterior, as is usual in long barrows, incline me to think that this collection of bones may be of less antiquity than the others. In none of these lower jaws had any teeth been lost before death; in only one is there any caries visible, and in one other there is a cavity formed by an alveolar abscess in connection with a lower front molar worn down to the fangs, and with its pulp-cavities almost entirely obliterated by osteo-dentine.

A considerable number of anteriorly platycnemic tibiæ have been removed from this cist; one femur, length 18·2 inches, giving a stature of 5 feet 6 inches, came with such a tibia, length 13·3 inches. It is somewhat flattened superiorly, but is not

carinate, though in all probability it belonged to a male subject. One tibia, not platyenemic, has been recovered from this cist; its length is 13·1 inches, giving a stature of 4 feet 9 inches. Three humeri, probably of females, with olecranic perforations, have been recovered from this cist, two of which possibly, though not probably, belonged to the same female subject. Of three other adult female humeri from this cist, one shows the commencing of perforation; the other two have no indication of it. Some of the human bones and some of the brute bones found in this cist or chamber present the manganic discolouration. The male and female bones, when compared, show the female bones, especially the clavicles and humeri, to be disproportionately smaller than the male. Some of the bones are beset with exostoses. The instance of an ossified costal, and another of an ossified ensiform cartilage, belong to this series.

Swell vi. (2, 1).—Skull, with part of lower jaw of a strong man in middle period of life, corresponding with the Hohberg type of His and Rütimeyer. 1 and 2 were close together at south-west corner of cist, with other bones, all disturbed, but still in some order. N.B.—Parts of two bodies, one a frontal of woman.

Ext. length . . .	7·5	Ceph. ind.	72
Ext. breadth . . .	5·3	Glabello-inial length .	7·3
Vert. height (approx.)	5·9	Circumference (approx.)	21

Ant. post. index, 97 out of 190.

There is considerable obliteration of sutures internally. The teeth are much and horizontally worn; some appear to have been lost during life, but no wisdom teeth were developed. The mastoids and supraciliary ridges are large, and the muscular lines for the temporal insertions pronounced. Frontal and parieto-occipital regions describe an even curve. The highest point in the vertical arc is a little posterior to the coronal suture. The sides of the occipital pentagon incline outwards a very little from the region of the parietal tubera, which in this skull are very faintly indicated, as in the Hohberg type of His and Rütimeyer, which it resembles also in its well-marked vertical carination. The mental prominence is not very great, but is markedly triangular when viewed from in front.

Under this label came the frontal and other bones of a woman.

Swell vi. (2, 2).—Skull, with part of lower jaw of woman past middle period of life. This skull was in the south-west corner of the cist, close together with Swell vi., 2, 1. Other bones were together with the skull; some finger-bones

were at the head of 2; and in front of neck a bead of Kimmeridge shale; but the bones were so much intermixed, it was difficult to say with which body it was associated.

Circumference . . .	20·3	Vert. height . . .	5·7
Ext. length . . .	7·2	Ceph. ind.	77
Ext. breadth . . .	5·6	Glabello-inial length .	6·8

Ant. post. index, 98 out of 183.

This skull, though large, and notably possessed of large mastoids, is, nevertheless, all but unquestionably a female skull, as shown by the verticality of its forehead, the absence of large supraciliary ridges, the prominence of its parietal tubera, and the smallness of its teeth.

The highest point in the vertical antero-posterior arc lies a little behind the coronal suture. The parieto-occipital, like the frontal region, has the vertical dip characteristic of the female sex. The difference—four-tenths—between the glabello-postremal and the glabello-inial diameters depends to a considerable extent upon the thickness of the superior occipital squama. Viewed in the vertical aspect, the skull presents a smoothly rounded-off outline, which has its point of maximum width in the meridian of the mastoids, and tapers somewhat rapidly forwards, and more gradually backwards, from that level, 123 parts out of 183 being anterior to it, as in *Swell vii.*, 1, 1. The tubera parietalia are prominent, and the lateral walls converge downwards from them, and, as in female skulls, there is no vertical carination.

This skull has many of the characteristics of the "Sion typus," in contradistinction to those of the Hohberg; but they are referrible, I think, to the difference of sex mostly, *e.g.* the forward position of the point of greatest width, the smoothly rounded outlines, and the absence of a vertical carina.

An upper incisor and a canine are the only teeth lost during life.

Swell vi. (2, 3.)—"Just south of 1 and 2 came another body, 3, with fingers at head, but whether disturbed or not I cannot say" (note of Canon Greenwell). To this may, perhaps, be referred an occipital and part of a parietal, labelled Swell vi., 2, 4. This occipital resembles the one just described, and also that belonging to Swell vi., 2, 5, in its great thickness.

Swell vi. (2, 4).—Immediately east of 1 and 2, another body, 4, on right side, head to E.S.E. At knees of 4, another body, 5.

Portion of calvaria of, probably, woman in or past middle period of life, long, flat, and low, from, probably, very much such a skull as Swell vi., 2, 5; so that it is possible enough

that these two skulls may have belonged to a mother and a daughter. The adult female humeri imperforated.

Under this label came also the bones of a strong male subject, many of which were exostotic.

Swell vi. (2, 5).—This calvaria probably belonged to a woman in the middle period of life. All the bones are of considerable thickness, but the skull does not bear the appearance of old age in other respects. Under it, however, are the bones of a much older and stronger subject (sex ?). To it probably belongs an upper jaw which had lost no teeth during life, though some are much worn, and in which no wisdom teeth have been developed.

Ext. length	7·4	Ceph. index . . .	7·2
Ext. breadth . . .	5·3	Glabello-inial . . .	6·8

There is a furrow developed along the posterior two-fifths of the sagittal suture; and in this respect, as in the more significant one of its elongato-oval vertical contour, and its fairly rounded-out outlines, as also in its relative lowness, so far as can be approximatively made out, this skull resembles the dolichocephalic form so common at Frilford, and in other Romano-British cemeteries. I have seen similar skulls in Dr. Thurnam's collection from Tilshead, West Kennet, and Nympsfield, but they are not common in early British cemeteries.

A bone of a pig came with these bones, as also parts of another and older human subject, distinct from either, under label vi. 2, 4.

At knees of 4, another body, 5, apparently on right side, head to E.S.E., hands to face, only one piece of lower jaw.

Swell vi. (2, 6).—

Ext. length	7·7	Glabello-inial length	7
Ext. breadth (approx.)	5·6	Frontal arc . . .	5·7
Vert. height	6·1	Parietal arc . . .	6·1
Ceph. index (approx.)	74	Occipital arc . . .	4·9

Calvaria with upper and lower jaws of man in middle period of life. The sagittal suture is entirely obliterated internally. The teeth, some of which had been lost during life, though none are carious, are a good deal worn. The mentum is characteristically triangular, but not prominent. The foramen mentale is in the line of interval between præmolar 2 and molar 1. The forehead is vertical up to the level of the frontal eminences; it then passes with an even curve backwards. The highest point of the vertical arc is an inch behind the coronal suture, the posterior halves of the parietals form an equable slope with superior occipital squama. The frontal sinuses are large.

It is a good representative of the Hohberg or Cumbecephalic type of skull.

With this skeleton were the humerus of a mole and a tooth of a fox.

Note by Canon Greenwell.—"Just south of 5, another head, 6, whether disturbed or not cannot say. The whole looks as if bodies had been partly divested of flesh."

Swell vi. (2, 7).—Under this label came two lower jaws, one certainly of a man of some considerable strength, and about 30 years of age; the other may have belonged to either a man or a woman, but in either case to an aged individual. Neither jaw had lost any teeth before death, though there is much horizontal wear of them in the older jaw.

Note by Canon Greenwell.—"Close to the west end of cist, at north side, a skull, 7, on the right side, laid on hip bones and sacrum of another body. There is connection with one femur at least. . . . . The body, 7, must have been on right side. Under 7, and pelvic bones, a very rotten skull, 8."

Swell vi. (2, 8).—Boy or girl of about 11 or 12 years of age.

Swell vi. (2, 9).—Skull of an aged person, probably a female; but under this label there are certainly parts of two bodies—one a strong man's, the other a woman's. The skull and the lower jaw I incline to think a woman's. With the skull came, in one paper, two vertebræ, two of the upper dorsal, with the following note: "These belong to 9, and were placed 1, 2, across the line of the others."

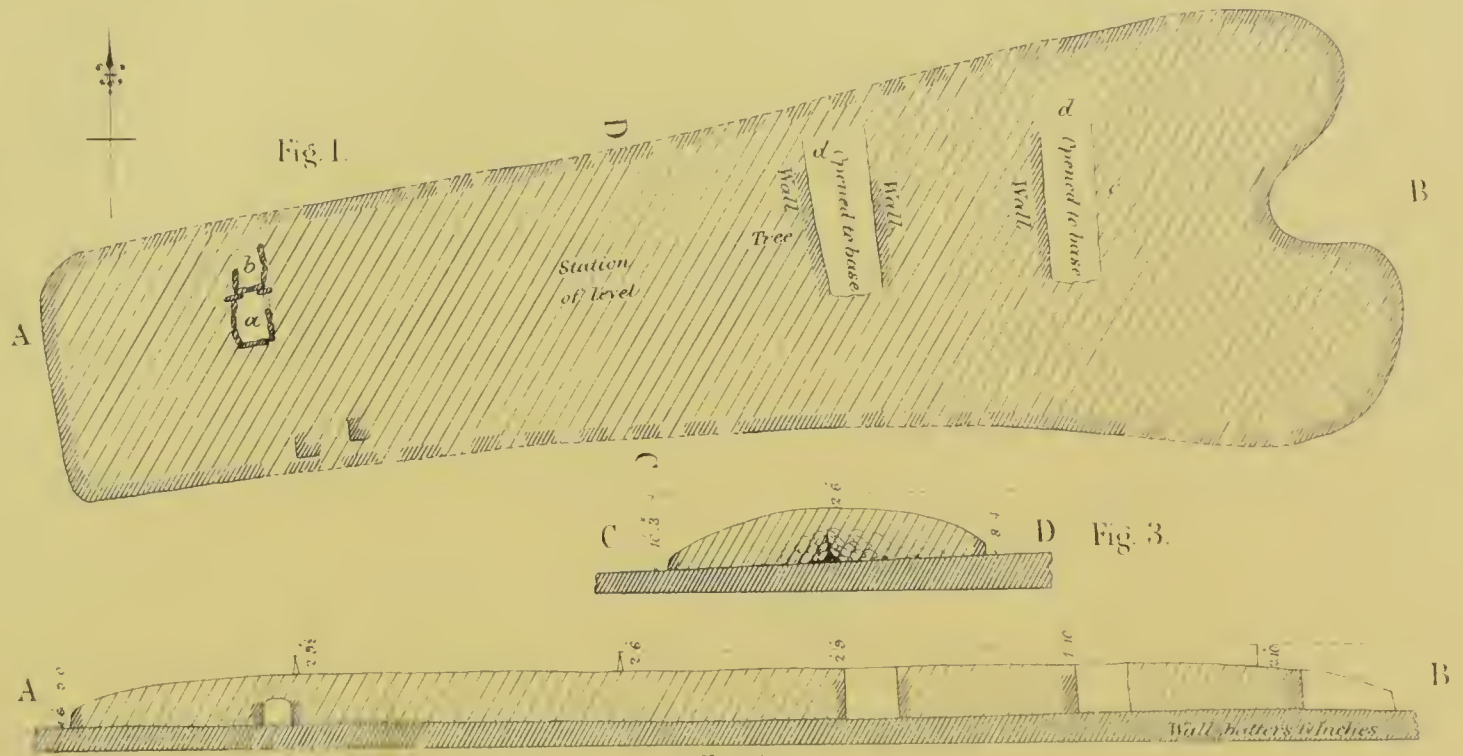
In another, seven of the lower dorsal came also in a paper by themselves. On the paper a note was written to the effect that they had all been found in connection.

The dislocation of backbone of 9 was probably caused by the lower part, which was on a large stone, not having gone down while the upper part settled.

The femur is flattened in region of glut. max., and gives a stature of 5 ft. 6 in. The tibia is flattened; but did these bones belong to the skull?

Ext. length	7·1	Ceph. index (approx.)	75
Extreme breadth . .	5·3	Femur	18·2
Vert. height . . .	5·5	Tibia	13·3

Viewed from above, this skull has an evenly ovate contour, tapering only very gradually either backwards or forwards. The point of maximum width is in the meridian of the mastoids, which are large for a female skull. The forehead is vertical up to the level of the tubera, and the parieto-occipital region is also a little more vertical than is usual in skulls of this elongated type. The parietal tubera are less well marked than is usual in female skulls. The supraciliary ridges, however, are characteristically female, as are also the low height index and



LONG BARROW "SWELL VII"

the lower jaw, the teeth in which are very much worn, and, though an alveolar abscess was developed under the anterior molar, had not been diminished in number by more than one or two during a very long life.

Note by Canon Greenwell.—"Just north of 7 and 8, a body, 9, on left side, head to south, apparently in position; hips are 7 inches higher than the head. Just north of hips of 9, a skull, 10, close to surface and much disturbed, No. 9 being the highest body, as regards the hips. The fact of its being undisturbed shows that any dislocation or breakage is not due to modern agencies."

Swell vii. (Pl. vi.)—The third long barrow examined at Netherswell in Sept., 1874, is situated on a hill to the N.W. of Netherswell Church, in the district known as Upper Swell, upon the estate of Alfred Sartoris, Esq., by whose kindness Canon Greenwell was allowed to explore it. It is the largest of the three barrows examined here, and resembles the second very closely in its contour, and both that and the first in the materials—oolitic flags and rubble—of which it is made up. Its extreme length is 173 feet. Its length from its westward end to the central concavity of its horns 156 feet; its extreme width, which lay about 20 feet west of the apices of the horns, is 57 feet; its least width, which is, as usual, at the west end, is 32 feet. The height of the mound is from 6 to 8½ feet above the natural surface; it is surrounded by a wall, which was 5 feet high at the east end, where it defined the outlines of the horns, and about 4 feet high round the sides and west end, being in thickness about 1 foot 6 inches. Its west end was quadrangular. Its long axis ran very nearly due east and west, as shown by the ground plan and sections (Pl. vi. figs. 1, 2, & 3), which, like the plan and section of "*Swell vi.*," we owe to Sir H. Dryden, Bart.

The point of special interest in this barrow was the presence in it, at 24 feet from its west end, of a chamber (Pl. v. fig. 3) 7 ft. by 4 in size, which had long ago, though within the memory of man, been rifled, but which still contained, in September, 1874, evidence of having furnished lodgment to no less than nine human bodies. To this chamber a passage led, the limit between chamber and passage being marked by the presence of a sort of doorway, across which a large flagstone crossed, at a distance of 1 foot 3 inches from the ground, and helped to support the roof. The floor of the passage was flagged, whilst that of the chamber was not, and just outside the doorway opening into the "chamber" lay parts of two more or less disturbed skeletons, one of a woman, one of a child, overlaid by an almost or entirely undisturbed male skeleton.

As regards this arrangement of the stones of which the barrow was made up, it is well to state that between the north and south walls the largest stones were found in the middle line, and were thus often placed upright with the more outwardly placed stones sloping towards them, and resting upon them for some distance, and then assuming a more horizontal arrangement. The first three feet from the ground were occupied by larger stones; the upper three of the entire number of six, the average height of the barrow, were occupied by smaller and less regularly placed stones (fig. 3, Pl. vi.). It was here, owing to the size of the barrow, and notably its height, that we observed that the workmen, in removing the stones in the various exploratory incisions, came constantly to arrange the stones which they displaced, in horizontal layers, for the sake of security from downfalls. Thus an appearance just like that of the transverse "walling," often observed in the undisturbed parts of the barrow, was frequently produced, and it is obvious that the two similar arrangements, however different in date, must, in all likelihood, have been due to the same cause, viz. the consideration by the labourers concerned of their own convenience.

The concavity of the horns at the east end was filled up for a space of 2 feet in depth with fine, small stones, outside of which again came larger stones, all evidently arranged intentionally, and in no way owing their disposition to the disintegration of the tumulus into talus. The horned east end, therefore, which, to us, when we had removed these masses of stones, presented a magnificent and striking appearance, was not preserved to the eyes of the early Britons, who erected it, nor, till 1874, had it been presented to those of anyone else.

The almost perfect state in which one skeleton found in the passage was recovered enhances the regret with which we have to think of the rifling of the "chamber," and the destruction, for craniological purposes, of the nine, or possibly more, bodies it contained. This skeleton was much contracted, lying on its left side, with the head at south-west by south, with the right hand up to the face, and the left at the elbow of the right arm. The two skeletons which lay beneath this one had been disturbed, probably, when its owner came to be buried. One of the two disturbed skeletons had belonged to a child about two or three years of age, and it lay under the lower part of the man's skeleton, having all its upper part in position, with its head to the north. Close to the child's head was the arm-bone of a woman from 18 to 20 years of age, of whose skeleton the lower vertebræ and pelvic bones were *in situ*, whilst the rest had been disturbed, and the skull was missing. The femur was recovered, however, and being 15·9 inches in length,

gives a stature of 4 feet 10 inches; one disproportionately small, as compared with that of the male, which was 5 feet 5 inches.

No record has been preserved, or, at least, has been recovered by us, as to how the nine bodies, or more, which the chamber contained had been packed away in its area of 7 feet by 4. Some further interest is given to this barrow by the fact that some secondary Saxon burials were discovered in it in the November of 1874. Two of the three bodies discovered upon this occasion had been disturbed; one was in the extended position, and still *in situ* from patellæ to lower jaw, inclusive, but had suffered some displacement, owing, probably, to the exceeding shallowness (9 inches) of the grave in which it laid. With this skeleton were two buckles, one on each shoulder, a knife on the pelvis, an amber bead near the sternum, and a piece of red pottery (pseudo-Samian) at the feet. The bones show the skeleton to have been a woman's, of about 30 years of age, and the mode of burial shows the sex and nationality to be as above stated. The head was at the south, the hands upon the pelvis. Lying upon the chest of this skeleton were a number of fragments of another adult skull, and to the right of its knees were the femur, tibia, and humerus of a strong old man; and about 6 inches from the right humerus of the female skeleton were parts of the skull of a baby, some fragments of which were also found over the female skeleton, and between its legs. Probably, or all but certainly, the two skeletons of the baby and of the old man had been disturbed and replaced when the woman was buried. Some bones of ox and of sheep, the latter differing much in size, were found in this grave. The grave was about 18 feet from the re-entering angle of the horned east end, and probably to it may belong a "spindle whorl" of stone, found October 5th, by Canon Greenwell, 3 feet 9 inches from surface, when making a large excavation close to the spot where, a little more than a month later, viz. November 7th, the female Anglo-Saxon belonging, as she and her tribe might have phrased it, to "the spindle side," was exhumed.

Traces of another secondary burial, which, though earlier than that of these Saxons, was later than the burials of the occupiers of the chambers, and the passage leading to it, may be supposed to be furnished to us by the discovery of some fragments of a very beautifully ornamented drinking-cup on the top of the barrow, very near the apex of the south horn at the east end.

At the opposite end of the barrow, on its south side, and about 6 feet from the south end of the chamber containing the fragments of nine bodies, a piece of a red deer's antler, partly cut, was found among the small stones and clay, which at that

point formed the lower part of the mound. Bones and teeth of sheep, ox, and calf, as also a piece of burnt bone, probably human, were found elsewhere, some 3 ft. deep, some at the very bottom, in the barrow; and bones of sheep, ox, and pig were found in the chamber, together with the human bones.

Osteology and Craniography of human remains from Swell vii.—Under the label, "*Swell vii. gen.*," signifying bones from the interior of the chamber generally, and under the label, "*Swell vii.* 1," we have bones proving the presence in the chamber, and in the passage leading down to it, of no less than twelve bodies, eleven being bodies of adults, and one the body of a child. Two of the adults from this barrow appear to have been about 20 years of age, one about 30, and the rest to have been in middle life or beyond it. The long exposure to indiscriminate plundering which this chamber had undergone, accounts for the fragmentary condition to which most of the bones still left in it had been reduced; had a freer entrance been made into it, however, even what has been saved to us would long ago have been irrevocably scattered. Some of the long bones, however, have escaped, so as to allow us to measure them, and draw from these measurements conclusions very similar to those which the remains found in the two other long barrows here described have enabled us to draw. Some of the femora and some of the humeri, for example, must have belonged to men of very great muscular power, whilst some of the other long bones must have belonged to females of eminently small size and strength. Two radii, for example, measuring, one of them, $8\frac{3}{10}$ in., and the other, $7\frac{8}{10}$ in., and being exceedingly slender, though obviously adult, enable us to say that their owners must have been ill-nourished women, such as are the wives of savages, of a stature, in the one case, of 4 ft. 9 in., and in the other, of 4 ft. 7 in. The femora of the male and female skeletons found lying at the entrance to the chamber being 18·1 in. and 15·9 in. in length, respectively, gives us for their owners the disproportionate statures of 5 ft. 6 in. and 4 ft. 9 in., respectively. A similar disparity exists between the clavicles; an observation made, like several others relating to this barrow, also in the cases of the other barrows examined here, and in the case of the human remains from the caves* of Gibraltar, examined by Professor Busk. Six lower jaws were recovered from this chamber, all but one of which must have belonged to strong adult men. The body of the bone lies, in nearly every case, evenly, on a horizontal surface, and forms a right angle, or something nearly approaching a right angle, with its ramus. The mental foramen lies far back in several instances, and the alveolar portion of the mental

* See "Transactions Prehistoric Congress," Third Session, p. 54.

region is largely developed. In every case but one the full number of teeth was retained up to the time of death, even though the teeth are very much worn in most cases, and in some even down to close upon the fangs. There was only one case of caries. Mr. Mummery* has made similar observations to these in relation to Dr. Thurnam's Wiltshire skulls, remarking, in addition†, that a much less favourable state of things prevailed as to the dentition of the dolichocephali from the Yorkshire Wolds.

There were two humeri from this barrow, both evidently female, and possibly from the same individual, with oleeranic perforations. Of the opposite condition of hyperostosis we have an example in the supraciliary ridges of one fragmentary and one nearly perfect frontal bone, the ridges not being underlaid by sinuses, but made up of cancellous bone. There were found here also one specimen of an ossified thyroid, and one of anchylosis of the dorsal vertebræ.

Many of the bones are encrusted with stalagmite; and a considerable number, both of the human bones and of the bones of sheep, ox, and pig which were found in the chamber, were discoloured by the manganic oxide, a circumstance which renders probable at once the contemporaneity and the antiquity of both.

Description of skull belonging to male skeleton found in passage leading into chamber.—Swell vii. (1, 1).—The bones of this skeleton show their owner to have been a man of about 30 years of age, traces of the suture between the first and second sacral vertebræ being still to be recognised in the middle line; to have been of average muscular strength, and of a stature of about 5 feet 5 inches. With his bones came also the jaw of a young pig, just as was the case with the bones from the chamber in Swell i.; as also some bones of a sheep or goat.

Cranial Measurements.

Ext. length . . .	7·4	Cephalic index . .	·76
Ext. breadth . . .	5·6	Antero-posterior ind.	94:189
Vert. height . . .	5·65	Distance from auditory foramen to fronto-nasal suture	4·3
Least frontal width .	3·8		
Frontal arc . . .	5·2		
Parietal arc . . .	4·8	Distance from auditory foramen to nasal spine	4·2
Occipital arc . . .	4·7		
Circumference (approx.)	21	Distance from auditory foramen to alveolar edge	4·4
Glabello-inial length	7·3		
Height of orbit . .	1·35	Width	1·6

* "Transact. Odont. Society," Nov. 1869, p. 13. † P. 15, *l.c.*

Interangular diameter of lower jaw	4·1
Depth of symphysis	1·4
Width of ramus	1·4

This skull has the typical dolichocephalic contour when viewed in the norma lateralis, though by mere measurement it is less dolichocephalic than skulls from similar barrows usually are. The highest point in its evenly curving antero-posterior arc is at the coronal suture. Its most striking characteristic is the prominence of its parietal tubera, which mark the point of its maximum breadth. From this level the skull is wall-sided downwards, and to complete the character of an "ill-filled"* skull, it slopes upwards from the same level to the sagittal line. It further shows a flattening externally and a convexity internally over the posterior inferior angles of both parietals, an appearance corresponding to the presence of certain irregular fissures in the brain, immediately posterior to the middle temporo-sphenoidal convolutions, and indicative of a lowly developed brain. The mastoid, the glabellar, and the supraciliary ridges are largely developed, and the latter are not underlaid by any frontal sinuses.

Viewed in the norma verticalis, the skull is pear-shaped, tapering rapidly from the level of the parietal tubera, both forwards and backwards. The parietal tubera are situated well forward, occupying a point which is at the 105th division out of 189 of the line of the whole length of the skull from the forehead backwards. The occiput is blunted posteriorly; and in these two latter particulars the skull resembles the "Sion types" of His and Rütimeyer. It is phœnozygous, as the "Sion types" are sometimes, though not always. The three principal sutures are complexly denticulated; the sagittal is nearly obliterated in the fifth of its length, corresponding to the entirely obliterated foramina emissaria. Internally the obliteration of the sutures has progressed much further than it has externally, and the walls of the skull are thick. In the norma occipitalis the pentagonal outline is very well marked, the lateral walls inclining inwards from the level of the tubera, and the roof falling away from a well marked sagittal elevation. The conceptacula cerebelli have the horizontal position so characteristic of dolichocephalic skulls. The palate is deep and elliptical. The wisdom teeth are little worn; the teeth anterior to them, on the contrary, very much. The lower jaw lies evenly on a horizontal surface; the alveolar portion of the mentum is largely developed; the inferiorly placed, triangularly

* For use and application of this epithet, see Cleland, "Phil. Trans.," 1860.

contoured portion of the chin is less in proportion than is usual in European skulls.

Explanation of Plates IV. to VI.

Plate IV.

Fig. 1.—Ground plan of Long Barrow, *Swell i.* The actual outlines as observable in 1867, 1868, and 1874 are given in continuous lines; the dotted lines represent a conjectural restoration of the original outlines. *a.* Eastwardly-lying "horns," conjecturally restored after analogies furnished by Long Barrows at Uley, figured in "Crania Britannica," Pl. v., and "Archæologia," xliii. p. 49; by barrows in neighbourhood of Swell figured below (Pl. v. and Pl. vi); and by Caithness cairns, figured by Dr. Anderson, "Proc. Soc. Ant. Scot.," 1866-1868, Plan vii. Compare p. 141 *supra.* *b.* Chamber discovered in 1867, and containing then three skeletons, as described above at p. 144. *c.* Line limiting to the eastward a zone of from 2 feet 8 inches to 3 feet 6 inches in width, containing in various parts of its length eight human skeletons. See above, p. 142. *d.* Penannular structure, figured on larger scale in next figure, and described at p. 142.

Fig. 2.—Penannular structure, meaning doubtful, discussed at p. 142. From an anastatic drawing by the Rev. David Royce.

Plate V.

Fig. 1.—Ground plan of Long Barrow, *Swell vi.*, reduced from plan taken by Sir Henry Dryden, Bart. The actual outlines, as observed in 1874, are given in continuous lines; the westward end is given in dotted lines, as conjecturally restored after analogy of Long Barrow, *Swell vii.*, Pl. vi. fig 1. See note, p. 153. *a.* Eastwardly-lying horns as actually seen in 1874. *b.* Westward end as conjecturally restored. *c.* Ruins of chamber described at p. 155. *d.* Ruins of cist described at p. 156, and named *Swell vi., Cist* 1. It contained parts of two adult human skeletons, of four skeletons of children, and of a dog's skeleton, as well as bones of ox and sheep, or goat, within a space of 5 feet 6 inches by 4 feet. *e.* Ruins of cist described at p. 159, and named *Swell vi., Cist* 2. It contained parts of no less than ten human skeletons. *f.* Cist described at p. 159, and containing bones of a single individual, between the ages of 12 and 16, together with an urn of coarse black ware.

Fig. 2.—Longitudinal section of Long Barrow, *Swell vi.*, reduced from section taken by Sir Henry Dryden, Bart. The more closely-placed slanting lines represent the natural ground.

Fig. 3.—Chamber, with passage or gallery leading to it from Long Barrow, *Swell vii.*, shown, in ground plan, at fig. 1, Pl. vi. *a*. Chamber containing, when examined in 1874, parts of nine or more human skeletons, together with a few bones of sheep or goat, ox, and pig—all domestic. Its walls are seen to consist of vertically-set flags and horizontally-arranged layers of smaller oolitic stone. *b*. Doorway marking limit between the chamber and the gallery leading to it. *c*. Position of the three skeletons found externally to the chamber (see p. 166).

Plate VI.

Fig. 1.—Ground plan of Long Barrow, *Swell vii.*, reduced, as are also the two following figures, from a plan taken by Sir Henry Dryden, Bart. *A*. Westward quadrangular end of barrow. *B*. Eastward horned end. *C*. South wall of barrow. *D*. North wall. These letters correspond with those used in the two sections subjoined. *a*. Chamber containing parts of nine or more skeletons. *b*. Gallery leading to the chamber, and containing parts of two skeletons, and one entire skeleton (see p. 165, and fig. 3, Pl. v.). *c*. Site of Saxon graves a little less than a foot deep (see p. 167). *d*. Excavations made by Canon Greenwell.

Fig. 2.—Longitudinal section of barrow from point marked *A* to point marked *B* in fig 1. The more closely-placed slanting lines represent the natural ground. Reduced from section by Sir H. Dryden, Bart.

Fig. 3.—Transverse section of barrow at points marked *C* and *D* in fig. 1 (see p. 166). Reduced from section by Sir Henry Dryden, Bart.

Discussion.

Mr. Hyde Clarke observed, that in the Rocky Mountains there were tall savages, with the usual proportion between the sexes, but that in the case of one tribe the men were tall, like those of the neighbouring tall tribes, and the women were short, like those of the Utahs, Shoshones, and other short tribes. The difference was supposed to be due to a mixture of race. It was to be remarked that the language is that of the short tribes.

Professor Hughes inquired whether it was clear that the bones, &c., had been burnt where now found; for if they had been burnt elsewhere, probably some chalk thrown in with them would be found unburnt, whereas all the chalk subjected to such a fire as that described would probably be converted into caustic lime, and if water percolated, would set in a form which could not be mistaken for chalk. He suggested that the irregular manner of occurrence of the parts of the same skeleton might, in some cases,

be explained by the falling-in of masses of mixed chalk and bodies, as the fuel which supported the mass, on being burnt, gave way.

Mr. Prideaux observed, that he did not believe there was any evidence which authorised the conclusion that the difference in size between the male and female in man was dependent upon the stage of civilisation attained. He regarded it as a race characteristic, and one that varied greatly amongst the civilised inhabitants of Europe. On the whole, there was a greater difference in size between the male and female in England than in France. Nowhere had he noticed the difference so slight as amongst the dark-eyed race inhabiting Glamorganshire, supposed to be descended from the Silures mentioned by Cæsar, quite a large proportion of the women being fully equal in stature to their husbands.

The President and Mr. Mummery also joined in the discussion, to which the author replied, and the meeting separated.